Sociology, in particular, has an extraordinary mandate as far as academic disciplines go: to conjure up social life. Conjuring is a particular form of calling up and calling out the forces that make things what they are in order to fix and transform a troubling situation. As a mode of apprehension and reformation, conjuring merges the analytical, the procedural, the imaginative, and the effervescent. But we have more to learn about how to conjure in an evocative and compelling way. If haunting is a constitutive feature of social life, then we will need to be able to describe, analyze, and bring to life that aspect of social life, to be less fearful of animation. We ought to do this not only because it is more exact, but also because to the extent that we want our writing to change minds, to convince others that what we know is important and ought to matter, we need to be more in touch with the nature of how 'the pieces of a world...littered all over a sociological landscape' (Smith 1987: 99) affect people. And we do not usually experience things, nor are affects produced, in the rational and objective ways our terms tend to portray them.

—Avery Gordon *Ghostly Matters: Haunting and the Sociological Imagination*, 1997: 22

University of Alberta

Perceptions of Change in Southwest Yukon Land and Socialscapes: Implications for the Study of Cumulative Effects and Social Thresholds

by

Lisa Marie Christensen ©

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

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Naomi Krogman, Supervisor

Brenda Parlee, Committee Member

Mark Nuttall, Committee Member

Date: July 24, 2008

Abstract

This research focuses on contemporary and historical relationships between landscape change and human impacts in southwest Yukon, Canada, in order to bring to light the nature of cumulative social effects, and culturally appropriate methodologies that may be used for their evaluation. Results were acquired through twenty eight semi-structured interviews with natural resource managers, health and social workers, First Nations, and non-First Nations residents, in which resource development, and other important local markers of change were topics of discussion. Social thresholds are also developed from these results for their use in supporting resource management decisions. Resilience theory plays a center role in this work, because it provides a unique framework for understanding human responses to change and recognizing the diverse roles people play as agents and recipients of change, particularly in terms of how social learning, over time, is applied to manage new resource activities.

Acknowledgements

There are a number of individuals and organizations I would like to thank for their important contributions to this research. First and foremost, I would like to thank Dr. Naomi Krogman, my academic supervisor, mentor, and friend. Her unrelenting enthusiasm and wisdom not only played a key role in shaping the directions of this research, but served to foster my sociological imagination, which I will carry with me for a lifetime; I am grateful we had the opportunity to get reacquainted in Whitehorse, where it all began. I am also grateful to my academic committee members Drs. Brenda Parlee and Mark Nuttall, who provided me with invaluable guidance and feedback over the course of my time as a Master's student.

There are several individuals at the Champagne and Aishihik First Nations (CAFN) Government to whom I am indebted for their efforts to make this research the best that it could be. Roger Brown was my main contact, and he put in countless hours coordinating aspects of the research that are too numerous to mention. Thank you to those who served on the research review committee (Roger Brown, Sheila Greer, Frances Oles, Paula Banks, and Karen Svec) for their assistance with development of the research design and research agreement, and feedback on the final products of this research; I learned a great deal about community-based and cross-cultural research from everyone on this committee. Thanks to Shadelle Chambers who helped organize the workshop, and Sheila Quock who helped me conduct the interviews—her cultural translation and interview skills were important assets to the research project.

I would also like to extend my gratitude to the research participants for sharing their personal stories of landscape and social change. Both the individual's knowledge

and the collective of First Nations' knowledge were necessary for accuracy in this research project. Significant commitment among a larger CAFN review committee, and data collection with CAFN liaison Sheila Quock, culminated in knowledge generated that represents collective intellectual property of value to the CAFN people. Special attention was given to the historical and cultural context for First Nation perspectives through our collective work with the research review committee in setting up the research design, and through exchange of ideas that were generated in drawing up the research agreement. The research design strongly emphasizes a local historical approach to understanding cumulative impacts, which is discussed throughout the thesis document and emphasized in the Conclusion section.

There are a number of supporters I would like to acknowledge for making this project financially possible: the Department of Rural Economy at the University of Alberta, Alberta Advanced Education, Environment Canada, the Northern Scientists' Training Program Grant, and the Circumpolar Boreal Alberta Research Grant. I am also thankful to the Arctic Health Research Network for granting me their Yukon Scholarship, made available by Dr. Kue Young with the Canadian Institutes of Health Research Team at the University of Toronto.

Over the course of this project I was fortunate enough to have discussions with a handful of experts on the north including Julie Cruikshank, Dave Neufeld, and Barney Smith, who talked with me about their research experiences with Yukon communities, which ultimately influenced mine.

Aside from my first year spent in Edmonton taking courses at the University of Alberta, I spent most of my student life in my home of Whitehorse, Yukon. Working as a

distance student had many benefits, such as being able to work closely with the CAFN, but there were also challenges such as reduced access to libraries and fewer opportunities to discuss my research with academic peers. However, the Whitehorse Public Library, Yukon Archives Library, and Energy, Mines and Resources Library provided me not only with local access to scholarly resources, but lovely public spaces in which to ponder my research. I also became friends with Suzanne de la Barre, a PhD student at the University of Alberta, from Whitehorse, who helped me to think about my research and writing about it in new ways. I would also like to thank Karen and Vicki, my Edmonton peers, for their advice and support.

Lastly, I would like to thank my parents, Hans and Arlene. No matter what paths I seem to choose in life, you always provide me with undivided support and encouragement along the way.

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Chapter One

The Context: Cumulative Impact Assessment in Canada's Arctic

Introduction

Important changes are afoot in Canada's North. Some of the trends that have become apparent include urbanization, less consumption of traditional food, an increase in the prevalence of mixed economies, increased connectivity between arctic economies and global markets, increased regulations, and global climate change (McCarthy et al. 2005). Northern peoples have a long history of adapting to their environments, but many of these changes are such that concerns have been expressed about their combined impact on the future well-being of northern cultures and societies (Chief Harrison, International Chair for the Arctic Athabaskan Council, 2005).

Related concerns colour the broader Canadian landscape. For instance, David Pelly (2005), author of *Thelon: A River Sanctuary,* wrote the following in response to a proposed uranium development activity in the Northwest Territories (NWT):

> The popular Canadian singer songwriter Murray MacLaughlin sang that 'the soul of Canada lies out past the timber line'. He is right. And when that soul is destroyed, there will no longer be a Canada. There will only be USA North. I would argue… that if we want to preserve this country's cultural identity for future generations, we have no option but to protect that vast sweep of wilderness where our soul resides, precisely, the area surrounding the Thelon Basin.

In this climate of concern and change, the holistic or cumulative assessment of current and proposed natural resource development projects becomes all the more important. Cumulative effects are known as, "the additive and interactive impacts that may result from human activities that are repeated over time and space" (Tollefson and Wipond 1998: 371). The point of their assessment is to ensure that the effects resulting

from combined influences of activities are examined rather than simply the effects of individual activities, which may not be considered significant on their own (Hegmann et al. 1999).

An important component of cumulative effects assessment is threshold analysis. A threshold is generally referred to as a limit of change, or point at which a change becomes unacceptable, and is typically used in cumulative effects assessment to help determine whether or not a project will have a significant impact on people or the environment. That is, if a project is expected to cause a threshold effect, its approval may be denied, or significant mitigative measures may be required for its approval.

On the surface, cumulative effects assessment appears as a promising framework through which communities can voice their concerns about interactive and additive change, and potential threshold effects. However, the process of cumulative effects assessment in Canada is rife with methodological problems, such as inadequate identification and analysis of cumulative effects (Baxter et al. 2001; Duinker and Greig 2006) and the lack of attention to social elements of these effects (Korber 2001; Burdge 2002). In addition, empirical data and typologies on social thresholds are lacking (Walker and Meyers 2004). There is thus a need to seek improved ways of understanding and studying cumulative social effects and their threshold counterparts.

The Yukon, one of Canada's three northern territories, presents a unique opportunity to study cumulative social effects and thresholds, because, for one, it has a storied history of development activity that continues to have relevance to its First Nations and non-First Nations peoples. The first major development in the Yukon was the Klondike gold rush of 1898, which brought tens of thousands of men to the Klondike

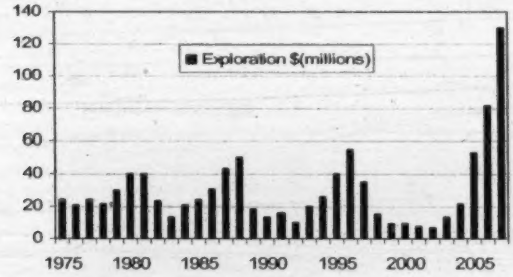
River region, and left behind a legacy of infrastructure through which the federal government could administer the territory (Cruikshank 1998) among many other impacts. The gold rush also marked the beginning of small and large-scale mining activity in the Yukon that tends to figure prominently in the economy. The next significant development was construction of the Alaska Highway from 1942-1943, which brought short-term impacts associated with the more than thirty four thousand men employed for its construction, and long-term changes in relationships between aboriginal people and the land, and their family and kinship structures (Cruikshank 1998).

From the 1940s to the 1970s a handful of large-scale resource development projects dotted the territory's landscape, and for the most part, went relatively unregulated (Slocombe et al. 2005). The Canol Pipeline and accompanying road, for instance, were constructed by the American Army in the early 1940s, and stretched from Norman Wells, NWT, through the First Nations village of Ross River, Yukon, to Whitehorse (Yukon Community Profiles 2004). In nearby Faro in the late 1960s, the world-class lead-zinc Anvil Mine was developed on the traditional lands of the Ross River Kaska Indians. In the early 1970s the Northern Canadian Power Commission started its operation of a hydro-electric project on Aishihik Lake, traditionally used by the Champagne and Aishihik First Nations (CAFN). Much like construction of the Alaska Highway, these projects had long-term implications for relations between aboriginal people and the land (as shown in Weinstein 1992, for example).

In terms of more contemporary development, forestry activities gained political appeal in the Yukon during the 1990s, especially in the southeast, but have not yet become economically significant (Slocombe et al. 2005). Currently, the Yukon is

preparing to undergo an increased rate of natural resource development and exploration. This is evidenced, in part, by the territorial government's recent oil and gas planning initiatives[1], creation of forest harvesting plans in cooperation with two of Yukon's First Nations[2], and increased exploration activity in the territory (figure 1.0).

Figure 1.0. Exploration expenditures in the Yukon, 1971-2007.



Source: Burke et al. 2008: 4.

The territorial government is also actively promoting the Yukon as a place for the exploration and mining industry to do business:

> the fact that base mineral prices are rising has made exploration for commodities like copper, lead, gold, silver, molybdenum, tungsten, and other metals more attractive…we will be encouraging the exploration and mining industry to look to Yukon for these resources (Lang, Energy, Mines, and Resources Minister, 2007).

Unlike decades of the past, many local peoples are in a favourable political position to address issues in a local context of the past, current, and future, because of First Nations' land claims and self-governance agreements. In 1993, Yukon First Nations negotiated the Umbrella Final Agreement (UFA) with the Government of Canada, which provided cash compensation, title to land, and an obligation to negotiate self-government among other provisions (Indian and Northern Affairs Canada 2004).

---

[1] Some of these initiatives include the recently passed royalty regulations under the Yukon Oil and Gas Act, a socio-economic agreement negotiated with the proponent of the Mackenzie Gas Project, and the revised oil and gas rights disposition process (Yukon Government, 2008).

[2] The Champagne and Aishihik First Nations and the Teslin Tlingit First Nations.

Regional Land Use Planning Commissions were also mandated by the UFA (under Chapter Eleven) and are responsible for developing land use plans to recommend to the three parties to the agreement: the Government of Canada, the Yukon Territorial Government (YTG) and the First Nations (Yukon Land Use Planning Council 2006). The Council is interested in addressing cumulative effects issues, as demonstrated by intensive workshops on the topic held in 2003 (Slocombe et al. 2005), and consideration to cumulative effects in the recent draft of the North Yukon Land Use Plan (North Yukon Planning Commission 2007).

Another important outcome of the UFA was YESAA (the Yukon Environmental and Socio-economic Assessment Act), legislation that provides a single assessment process for projects under federal, territorial, or First Nation jurisdictions. Assessments are carried out by one of its six Yukon Designated Offices, which must be considered by the legislated authority (the federal, territorial, or First Nations government) who then makes the final decision; YTG is most commonly the authority. Notably, section forty two of the Act (Bill C-2, Yukon Environmental and Socioeconomic Assessment Act 2003) shows that project-based cumulative effects shall be given consideration:

> (d) the significance of any adverse cumulative environmental or socio-economic effects that have occurred or might occur in connection with the project or existing project in combination with the effects of
>
> (i) other projects for which proposals have been submitted under subsection 50(1), or
>
> (ii) other existing or proposed activities in or outside Yukon that are known to the designated office, executive committee or panel of the Board from information provided to it or obtained by it under this Act.

Many of the seeds for effective cumulative effects assessment are in place in the Yukon, but because cumulative effects remain poorly understood here (Cruikshank, Director of the Yukon Land Use Planning Council, 2003), as they are elsewhere in

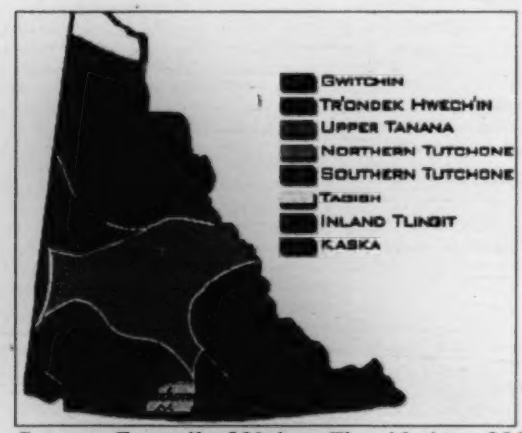
Canada, there is a risk that current and future development may unfold in ways that are undesirable to local people.

The Champagne and Aishihik First Nations Peoples

Cultural context is important to convey in a work such as this so that the reader may gain a more nuanced perspective on the ways in which history manifested in the region of focus. Adaptation to change is a key characteristic of the Champagne and Aishihik peoples and will be elaborated on below, albeit briefly, in terms of how it influenced their movements through the landscape and social relationships.

The Champagne and Aishihik First Nations are members of the Southern Tutchone Athapaskan linguistic dialect, which is one of eight Athapaskan dialects spoken in the Yukon Territory (Cruikshank 1991). See figure 1.1 for a map of the variety of First Nations languages spoken in the territory. Athapaskan peoples have long

Figure 1.1. First Nations languages spoken in the Yukon Territory



Source: Council of Yukon First Nations 2008.

demonstrated an ability to adapt to new circumstances when necessary, which Cruikshank (1980) says is repeatedly reflected in oral narratives and mentioned by ethnographers.

Catherine McClellan (2001), for instance, who has written extensively about the Southern Tutchone, makes this clear in her documentation of their seminomadic lifestyles, influenced primarily by the seasonal availability of food sources, such as salmon and caribou. Adapting to wildlife cycles had a strong influence on the ways in which the Southern Tutchone were socially organized, that is, people were scattered across the landscape in small groups, the composition of which varied over time as people moved about in search of food—large social gatherings were intermittent and brief (*ibid.*).

In addition to adaptation to the seasons and resources, the matrilineal kinship divisions, Wolf and Crow, had a major influence on social organization (*ibid.*). The anthropological term "moiety" describes these divisions: every person was born into one of these two groups and took on the affiliation of his or her mother (Cruikshank 1990). All family groupings were comprised of members of both moieties, as Crows could only marry Wolves and vice versa; other links between moieties were established through trade relations and other forms of partnerships (*ibid.*).

Trading activities played a prominent role in structuring many of the Southern Tutchone's external social relationships during the nineteenth century (McClellan 2001). According to native memory and legends, the juxtaposition of coastal and interior environments fostered the exchange of aboriginal goods, which was later intensified with arrival of the Russians, British, and Americans on the coast (*ibid.*). The coastal Tlingit dominated the native trade scene, but the Southern Tutchone, Tagish, and Inland Tlingit, the tribes closest to them on the interior, dominated Athapaskans living further inland (*ibid.*).

McClellan's ethnographic portrayal of the Southern Tutchone depicts adaptation as a longstanding cultural trait, which has allowed them to thrive in a harsh subarctic environment, with fluctuating animal populations, and reorganize with the arrival of newcomers. One of the important features of these modes of social organization is reflected in the following quote, "it is this human ability to create meanings and to reproduce culture especially in situations of social and economic dislocation, that gives culture integrity" (Cruikshank, 1998: 114).

Research Purpose and Objectives

Prior to describing the purpose and objectives of this research, I would like to briefly point out how this research on cumulative social impacts came to be. After my first year of course work at the University of Alberta I was hired to assist the CAFN of southwest Yukon with a review of socioeconomic indicators[3] they had chosen to monitor as part of their forest management plan, and examine how their set of indicators fit with those chosen for forestry planning elsewhere. I had concluded that the richer indicators around quality of life and well-being, important to the First Nations as part of their long-term development goals, were generally not recognized by the CAFN or the Yukon Territorial Government as part of sustainable forest management.

Through this work, a partnership between the CAFN and me and my supervisors at the University of Alberta came to fruition. The purpose that grew out of this partnership was to better enable the CAFN to incorporate their long-term social and cultural interests into the management of natural resources, land use planning, and negotiation processes—hence the focus on cumulative social effects.

---

[3] Indicators as signals of social or economic well-being, and are monitored by managers so that appropriate management action may be taken if necessary.

For this research, I focused on two main objectives, which shared the same data generation methods. The first was to develop a culturally appropriate method for understanding cumulative effects, with special consideration to the relationships between landscape change and human impacts. This method was informed by discussions with the CAFN, and a set of semi-structured interviews with First Nations and non-First Nations residents, health and social workers, and natural resource managers.

The second objective was to generate a sociological conception of thresholds that could contribute to the assessment of cumulative effects. This objective came out of an original one to create a suite of social thresholds so that social outcomes of change events could be quantitatively linked with landscape outcomes forecast in simulation tools such as ALCES (A Landscape Cumulative Effects Simulator) North. However, the funder interested in this aspect of the project, Environment Canada, discontinued funding in the second year, so the priority shifted to understanding thresholds on a conceptual basis. Results for this objective were acquired through the same set of interviews described above, and a literature review on thresholds.

Project interviews followed a qualitative research design, which is generally undertaken when one holds the philosophical view that "reality is constructed by individuals interacting with their social worlds" (Merriam 1998: 6). In general, qualitative research draws from phenomenological philosophy in the sense that experience and interpretation are points of emphasis (*ibid.*), without necessarily assuming that there is an essence to shared experience (Patton 2002). This approach was important, because it allowed research participants to attach meaning to their experiences of social and landscape change in a variety of ways.

The basic or generic approach best describes this qualitative research, and may be characterized by its emphasis on understanding a phenomenon through the identification of recurrent patterns, themes, or categories that "cut through" the data (Merriam 1998: 11). Findings tend to be a mix of description and analysis, informed by the overarching goal of the study; the analysis does not include substantive theory development (*ibid.*). Specific patterns in the data were sought via the constant comparative method, in which statements of relationships and concepts in the data are inductively proposed, followed by verification of what has been derived through comparison of incident with incident (Strauss and Corbin 1990). This allows similar data to be grouped according to categories, and is a technique commonly used across all kinds of qualitative research (Merriam 1988).

Theoretical Guidance

Literature on cumulative effects assessment, social impact assessment, and resilience influenced the design of this research in a handful of intersecting ways. Primarily, I was seeking to understand the nature and substance of cumulative social impacts in the context of natural resource development, frameworks that have been used for their evaluation, and sociological concepts and research that could strengthen their foundations.

First of all, this review illuminated to me some of the most apparent gaps in cumulative and social impact assessment, which coalesced on the dearth of fundamental knowledge of the ways social impacts from resource development accumulate and interact over time. Secondly, this review highlighted the literature's emphasis on the structure of the development activity as impacting people, as opposed to the diverse roles

people play as agents and recipients of change. Similarly, in the resilience literature, which has been used to discuss a variety of human adaptations to changes such as global climate change (e.g. Adger and Kelly 1999; Berkes and Jolly 2001) and resource development (e.g. Adger 2000; Varghese et al. 2006), one of the least understood aspects of resource management science is how communities have responded to change (Gunderson and Holling 2002).

These findings led me to organize the research in such a way that insight could be gained into the basic nature of cumulative social effects and methodologies that could be used for their evaluation, while using a theoretical framework that recognized impacts from the structure of development along side the role of human agency and response to change. In the study, this took the form of exploring how people experienced impacts from past and current change, the learning they underwent, and the visions they have for the future as a result.

I was also seeking to develop a conception of social thresholds, for use in supporting resource management decision making, and as a practical way to study resilience. In the resilience literature thresholds are commonly used to describe "breakpoints" between two regimes or alternate stable states in a system, meaning that when a threshold level is passed, a regime shift occurs, and as a result, the nature and extent of feedback in the system changes (Walker and Meyers 2004). A review of empirical work on such thresholds indicated to me that this model made a great deal of sense when applied to ecological systems. However, in a social context, it was problematic for reasons such as that regime shifts can be difficult to identify in societies, and the contextual dynamics that influence how societies transform themselves over

time—highly relevant to the project of resilience—did not seem to fit within such an exclusive framework.

In order to address this problem, I realized it was necessary to first conduct a more sociological analysis of social resilience, from which threshold theory is derived, using sociological theory on functionalism by Talcott Parsons (1937). This perspective along with critique on functionalism provided a unique lens through which to view the strengths and weaknesses of resilience theory, which opened up new possibilities for thinking about thresholds. Examples of social thresholds were then acquired from my findings on cumulative social effects to further enhance my new vision for social thresholds.

Significance and Contribution of Research

First and foremost, this research provides a novel approach to studying cumulative social impacts and social thresholds. Development of these approaches is timely in that resource development in Canada's North is ever increasing, whereas effective application of cumulative effects management remains somewhat elusive in the realm of environmental assessment.

The CAFN Government was involved in the project from its design stage through to publication of this thesis. Having the CAFN involved in this way was paramount in terms of making sure the work would be culturally meaningful; ensuring capacity building took place within the CAFN Government on their terms; and ensuring a high level of communication with CAFN employees, members, and other residents of the community.

It is hoped that findings from this study will be useful to community groups, governments, and individuals when preparing and planning for the social impacts and benefits that may occur with future development. More specifically, this research may aid the First Nations and others with negotiation of such things as impact and benefit agreements, and the furtherance of CAFN's existing sustainability monitoring efforts. At an individual level, this work may help people feel better equipped to participate in environmental assessment processes that consider resource development, i.e., those prescribed by the YESAB (Yukon Environmental and Socio-economic Assessment Board).

Limitations of the Research

Studying the cumulative social effects of change is a vast undertaking on many fronts—the breadth of history and perspectives on it being some of the most challenging to negotiate. Because this was a Master's level thesis project, I was not able to interview as many people as would have likely been of benefit. For the same reason, my capacity to inquire deep into the history of landscape and social change was limited, i.e., certain events were focused on to the exclusion of others. Therefore, findings from this study should be considered examples of the range of cumulative social effects experienced in southwest Yukon.

In addition, because of sensitivities expressed by CAFN members and sample size limitations, I was unable to make response comparisons across resource managers, health and social workers, and First Nations and non-First Nations citizens. These comparisons may have been useful for understanding how perspectives on change differ depending on one's social position.

While it was informative to glean information on social thresholds from interviews with First Nations, non-First Nations, health and social workers, and natural resource managers, it would have been useful to hold a public discussion of these thresholds for the sake of inclusion of a greater subset of viewpoints. A forum such as this would foster social learning, or the collective process of working towards a common goal (such as resource management), which has been identified as an important component of environmental management—especially co-management (e.g., Pinkerton 2003).

Reflections of Social Location

According to Statistics Canada, my social location would be best described by a variety of structural classifications. Some of these are that I am a single white female, aged twenty five to twenty nine. I am also a Canadian citizen by birth, and English is my native language. Although my parents were born in Canada, my family's cultural origins are Danish, German, and Austrian. I speak none of these languages, but can say I have been fortunate enough to visit these places and the members of my extended family who live there. I have never had to deal with racially discriminative circumstances in my daily life, nor have I faced any significant physical, mental, or health challenges.

Up until I moved to the Yukon, the mobility section of the census was the most pain staking to complete. I have lived in various locations in Western Canada and the Southwestern United States since I completed my undergraduate degree in 2000, and most of my dwellings have consisted of rented spaces or tents (I worked as a field biologist for many years, which often required that I live on location at forested sites in

the absence of housing infrastructure). My income has averaged between ten and thirty five thousand dollars for the past several years, and I have no religious affiliation.

In terms of how these aspects of social location influenced my relationships with interviewees, initially, I thought my Yukon residency would help to broaden the common ground I shared with them and allow me to "break the ice" with greater ease. This was the case with a handful of participants, but for the remainder, I felt I was starting from scratch—as if an "outsider".[4] This is when I discovered that in many small Yukon communities, urbanites from Whitehorse are treated with nearly the same familiarity as those from outside. On the other hand, because of my work experience as a biologist in the Yukon, I felt I had greater rapport with natural resource managers, because of the common language we shared. Because the interviews were conducted in communities that have been bicultural (aboriginal and Euro-Canadian) for many decades, I did not feel significantly bereft of relational capacity with aboriginal interviewees. However, a great deal of cross-cultural translation was necessary in some cases, which the community liaison, Sheila Quock, carried out with ease.

My appearance as a white, relatively privileged researcher also had a role in how the project unfolded. In the beginning, I was made aware of the Champagne and Aishihik First Nations prior experience with colonizing research methodologies, which left many of its members with a negative view of outsider-instigated research. Because of this history, I felt I had a substantial amount of trust building to do, which was achieved largely through negotiation of a research agreement that delineated the nature of my formal relationships with CAFN employees involved in coordinating the research.

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[4] Colloquial term for people from a non-Yukon geographical location.

Those who know me intimately would probably know that research on the cumulative effects of resource development is of sincere interest to me, and ironically enough, was the very subject that drew me to graduate studies in the first place. In part, this is because my northern work experience with Environment Canada and the Yukon Territorial Government exposed me to strong public concerns over proposed natural resource development projects in the territory. As a person born and raised in central Alberta and southeastern British Columbia, I have acquired an acute sensitivity to how unfettered human and resource developments can transform the dynamics of land and socialscapes over time. People who know me well would also know that I value research that fosters democratic decision making in the context of natural resource development in Canada's North. Although the voices of many communities have been empowered through land claims and self government, challenges still exist in the processes that determine whether or not and how resource development proceeds.

Throughout the research process I tried to maintain a high level of awareness with respect to my socioeconomic characteristics, interests and intentions, and how they influenced transpiration of the research. This is not to say that these social locations need to be forgotten, because as Maxwell (1996: 29) states, "any view is a view from some perspective, and therefore incorporates the stance of the observer."

Thesis Organization

This thesis consists of four chapters, two of which have been written as papers intended for publication in two separate refereed journals. The first of these, found in chapter two, examines the social elements of cumulative effects management via discussions with local people from southwest Yukon about their perceptions of social and

landscape change in the region. In the second paper, located in chapter three, a framework for understanding social thresholds is developed using the findings on cumulative social effects. In the final chapter, overarching conclusions from the research are discussed along with implications of this research for resource management in the Yukon.

References

Adger, N. 2000. Social and ecological resilience: are the related? *Progress in Human Geography* 24(3): 347-364.

Adger, N. and P. M. Kelly. 1999. Social vulnerability to climate change and the architecture of entitlements. *Mitigation and Adaptation Strategies for Global Change* 4: 253-266.

Baxter, W., W. A. Ross, and H. Spaling. 2001. Cumulative effects assessment: Improving the practice of cumulative effects assessment in Canada. *Impact Assessment and Project Appraisal* 19(4): 253-262.

Berkes, F. and D. Jolly. 2001. Adapting to climate change: social-ecological resilience in a Canadian western arctic community. *Conservation Ecology* 5(2): 18 [online] URL: http://www.consecol.org/vol5/iss2/art18.

Bill C-2, *Yukon Environmental and Socioeconomic Assessment Act*. 2003. 2nd session, 37th Parliament 51-52. *Statutes of Canada*, c. 7.

Burdge, R. J. 2002. Why is social impact assessment the orphan of the assessment process? *Impact Assessment and Project Appraisal* 20(1): 3-9.

Council of Yukon First Nations. 2008. Our Languages. Accessed May 28, 2008 at http://www.cyfn.ca/dyncat.cfm?catid=115

Cruikshank, J. 1980. Legend and Landscape: Convergence of Oral and Scientific Traditions with Special Reference to the Yukon Territory, Canada. Thesis, St. Catharine's College. Cambridge: Scott Polar Research Institute.

———. 1990. *Life Lived Like a Story*, Vancouver: University of British Columbia Press.

———. 1991. *Dan Dha Ts'edenintth'e Reading Voices, Oral and Written Interpretations of the Yukon's Past*. Vancouver: Douglas and McIntyre.

———. 1998. *The Social Life of Stories: Narrative and Knowledge in the Yukon Territory*, Vancouver: UBC Press.

Cruikshank, R. 2003. Sourced in Environment Canada, Data in and planning out. *Your Yukon.*. Column 311, 2003. Accessed March 13, 2008 at http://www.taiga.net/yourYukon/col311.html

Duinker, P. N. and L. A. Greig. 2006. The impotence of cumulative effects assessment in Canada: Ailments and ideas for redeployment. *Environmental Management* 37(2): 153-161.

Gordon, A.F. 1997. *Ghostly Matters: Haunting and Sociological Imagination.* Minneapolis: University of Minnesota Press.

Gunderson, L. and C. S. Holling, eds. 2002. *Panarchy: Understanding Transformations in Human and Natural Systems*. Washington, D.C.: Island Press.

Harrison, G. 2005. News release: Arctic Indigenous Peoples unveil statement on climate change. Arctic Athabaskan Council. Accessed February 11, 2008 at http://www.arcticathabaskancouncil.com/press/20051206.php.

Hegmann, G., C. Cocklin, R. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross, H. Spaling and D. Stalker. 1999. *Cumulative Effects Assessment Practitioners Guide.* Prepared by AXYS Environmental Consulting Ltd. and the CEA Working Group for the Canadian Environmental Assessment Agency, Hull, Quebec.

Indian and Northern Affairs Canada. 2004. Yukon Agreements Backgrounders Package. Umbrella Final Agreement: Highlights. Accessed March 12, 2008 at http://www.ainc-inac.gc.ca/pr/agr/ykn/umb_e.html

Korber, D. 2001. Workshop on cumulative effects of development in the Treaty 8 Area: Exploring a research program. Workshop proceedings, May 15-17, Fort St. John, BC. Sponsored and organized by the Sustainable Forest Management Network.

McCarthy, J. J., M. Long, R. Martello, N. Corell, S. Eckley Selin, G. Fox, S. Hovelsrud-Broda, C. Disch Mathiesen, H. Polsky, N.J. Selin, and C. Tyler. 2005. Climate change in the context of multiple stressors and resilience," In Arctic Climate Impact Assessment, eds. , Chapter 17.

McClellan, C. L. 2001. *My Old People Say: An Ethnographic Survey of Southern Yukon Territory, Part 1.* Hull, Quebec: Canadian Museum of Civilization.

Maxwell, J. A. 1996. *Qualitative Research Design: an Interactive Approach*. Applied Social Research Methods Series (41). Thousand Oaks: Sage Publications.

Merriam, S. 1998. *Qualitative Research and Case Study Applications in Education: a Qualitative Approach.* San Francisco: Jossey-Bass Publishers.

North Yukon Planning Commission. 2007. Draft North Yukon Regional Land Use Plan: Looking Forward. Accessed March 12 at http://nypc.planyukon.ca/index.php?option=com_docman&task=cat_view&gid=99&Itemid=338

Patton, M. Q. 2002. *Qualitative Research and Evaluation Methods*, 3rd Edition. Thousand Oaks: Sage Publications.

Parsons, T. 1937. *The Structure of Social Action: A Study in Social Theory with Special Reference to a Group of Recent European Writers.* New York: McGraw-Hill.

Pelly, D. 2005. Letter submitted to the public registry, May 30, 2005. In Mackenzie Valley Environmental Impact Review Board Report of Environmental Assessment and Reasons for Decision on Ur Energy Inc. Screech Lake Uranium Exploration Project (EA 0607-003), p. 32.

Pinkerton, E. 2003. Towards specificity in complexity: Understanding co-management from a social science perspective. In *The Fisheries Co-Management Experience: Accomplishments, Challenges, and Prospects,* eds. D. C. Wilson, J. R. Nielsen, and P. Degnbol, 61-77. Dordrecht, Netherlands: Kluwer Academic Publishers.

Slocombe, S., L. Hartley, M. Noonan. 2005. Environmental assessment and land claims, devolution, and co-management: Examples of evolving challenges and opportunities in the Yukon In *Environmental Impact Assessment: Practice and Participation*, ed. K. Hanna, 212-228. Toronto: Oxford University Press.

Smith, D. 1987. *The Everyday World as a Problematic: A Feminist Sociology*. Boston: Northeastern University Press.

Strauss, A. and J. Corbin. 1990. *Basics of Qualitative Research, Grounded Theory Procedures and Techniques.* Sage Publications: London.

Tollefson, C. and K. Wipond. 1998. Cumulative environmental impacts and aboriginal rights. *Environmental Impact Assessment Review* 18: 371-390.

Varghese, J., N. T. Krogman, T. M. Beckley, S. Nadeau 2006. Critical analysis of the relationship between local ownership and community resiliency. *Rural Sociology* 71(3): 505-527

Walker, B. and J. A. Meyers. 2004. Thresholds in ecological and social-ecological systems: a developing database. *Ecology and Society* 9(2): 3. [online] URL: http://www.ecologyandsociety.org/vol9/iss2/art3

Weinstein, M. S. 1992. Just like people get lost: A retrospective assessment of the impacts of the Faro mining development on the land use of the Ross River Indian People. A Report to the Ross River Dena Council.

Yukon Land Use Planning Council. 2006. Accessed March 12, 2008 at http://www.planyukon.ca/

Yukon Community Profiles. 2004. Ross River. Accessed March 13, 2008 at http://www.yukoncommunities.yk.ca/communities/rossriver/

Chapter Two

Mining the Future: Local Learning and Desire as an Indication of History's Cumulative Effects

(Target Journal: Society and Natural Resources)

Introduction

Cumulative effects assessment (CEA) has become an important component of many environmental impact assessment (EIA) processes concerning natural resource development around the world, which are ultimately designed to minimize environmental harm. Simply put, cumulative effects are "the additive and interactive impacts that may result from human activities that are repeated over time and space" (Tollefson and Wipond 1998, 371). The intent of cumulative effects assessment then, is to ensure that the effects resulting from combined influences of activities are examined rather than merely the effects of individual activities, which may not be considered significant on their own (Hegmann et al. 1999).

In Canada, it is now standard practice for the cumulative effects of major infrastructure and resource developments to be considered in EIAs (Baxter et al. 2001). There are currently two known theoretical frameworks through which they are considered: regional and project cumulative effects assessment. The former focuses on the effects of various human activities in terms of how they may cause cumulative effects within a particular region, whereas the latter evaluates impacts of a single project in combination with those of other (past, present, or future) human activities (Creasey and Ross 2005). Under Canadian EIA processes, project CEAs are the form required (*ibid.*).

However, as it turns out in practice, CEA is indistinct from EIA in terms of how effects are identified and analyzed, as Baxter et al. (2001) found in a critical evaluation of twelve Canadian cumulative effects assessment documents.

The gap between CEA theory and practice is one of the main problems Baxter et al. associate with the "less than satisfactory" quality of CEA in Canada. Additional problems they documented in their review include inadequate scoping (breadth of the inquiry), and weak analysis and follow-up evaluation. Others (Duinker and Greig 2006) have cited similar problems with CEA, particularly in regards to a lack of good base-line data. Efforts have recently been made to standardize CEA approaches in Canada, such as publication of the Practitioners Guide to CEA (Hegmann et al. 1999), but pedagogy here more or less covers basic environmental assessment approaches and principles, focuses on large projects as opposed to small ones, and notably, on biophysical rather than socio-economic effects (Korber 2001).

This tendency to focus on cumulative biophysical rather than socio-economic assessment is hardly a surprise, because social impact assessment work has not yet become cumulative (Burdge 2002). With the exception of Ross' (1990) article on community social impact assessment in Australia, one is hard pressed to find substantive methodological work on cumulative social impact assessment. In Canada, it wasn't until Justice Berger conducted an inquiry of the proposed Mackenzie Valley Gas Pipeline, from 1973 to 1977, that assessment of the "environment" was considered insufficient without inclusion of social and cultural concerns (Wismer 2003). One could make the argument, consequently, that Berger conducted the first and last veritable environmental assessment in Canada.

Canada's North is perhaps one of the most critical places to undertake cumulative social effects research, because of the variety of important changes taking place, including: industrial development, spread of pollution and contaminants, international trade, sustainable development, and climate change (Nuttall 2005). The interrelations and cumulative effects of these changes are poorly understood (Nuttall 2005), and northern communities are concerned about the impacts of such changes on their quality of life:

> ...We are alarmed about the cumulative impacts of climate change and the increasing pace of resource development, and the significant risk this poses for the survival of our cultures. We need help now, to adapt our traditional economies and occupations to the new realities (Chief Harrison, International Chair for the Arctic Athabaskan Council, 2005).

Moreover, cumulative effects management issues are becoming increasingly common in judicial processes instigated by First Nations and Inuit groups against development corporations (Lawe et al. 2005).

In collaboration with the Champagne and Aishihik First Nations of the Yukon Territory, Canada, my objective has been to explore the human experiential side of landscape and social change, and how cumulative social impacts may be better studied and understood. More than a century of complex history exists in this area, which creates an interesting palette from which to view the various forms cumulative social effects have taken. The historical and contemporary aspects of change are emphasized in this work so that linkages could be made between how people experience impacts, the learning they undergo as a result, and the visions they have for the future as a result. As the title of this paper suggests, these linkages are important when making sense of how

cumulative effects are understood by people who have lived through decades of change in one place.

Approaches to Studying Social Impact Assessment

A review of the scholarship on social impact assessment (SIA) has been key in terms of illuminating the gaps apparent in its methodologies, which are highly applicable to the assessment of cumulative social impacts. According to the academic literature, social impacts may be defined as "all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of a society" (Burdge and Vanclay 1995: 32).

In the context of natural resource development, methods for assessing social impacts have generally consisted of two basic forms over the years: technical and participatory. Technical, which was the most common approach in early SIA, assumed that the "valued components" and workings of a society could be measured through an approach of obtaining quantitative data on a community's social attributes, such as population, migration, income, and education (Pushchak and Farrugia-Uhalde 2005). The participatory approach, by contrast, is based on an epistemology that recognizes the complexity of social life, and that impacts cannot necessarily be predicted with much certainty. Assessors who use this approach typically predict impacts by engaging in dialogue with those who are expected to experience social impacts (*ibid.*) and those who wish to engage in active decision making as development unfolds (Ross 1990).

The advent of the latter approach likely reflects a larger transformation that has occurred over the years with respect to theoretical arguments about community

sustainability. In the realm of early sociological inquiry, sustainability was understood in terms of community stability, a concept that denoted the interplay of social changes that must not go beyond a certain limit, must not be too many or too fast, and acceptability of those changes (Dessauer 1949), implying a steady-state dynamic of change. Interestingly, historical studies on community stability show that socio-cultural issues such as well-being, community development, political processes, or social change were rarely the focus (Clary 1986; Robbins 1987 and 1982; and Steen 1976), whereas issues associated with stable economic conditions, such as employment and real estate values were. In fact, community stability was used for a long time in the forest industry as means to legitimate stable economic conditions, i.e., to protect the status quo of resource harvests (Lee 1987).

In its ideal form, community sustainability is now associated with quantitative and qualitative measurement techniques that demonstrate a community's ability to *adapt* to change. For example, Beckley (1995) suggests levels of human capital, imagination of community leaders, the ability to access information, and availability of a flexible and diverse resource base as variables or indicators that affect a community's adaptability. In terms of dynamics, contemporary use of the term "sustainability" reflects that societies are in a constant state of readjustment to changing conditions; they are not necessarily at equilibrium as was once presupposed with community stability.

Even though frameworks for assessing social impacts and sustainability have improved over the years by incorporation of more meaningful indicators, such as those described here, significant gaps remain in the accumulated body of knowledge. For one, many studies have been undertaken according to the immediate effects of boom and bust

economies—long-term social effects have been largely understudied (Smith et al. 2001). Secondly, change rather than rates or scales of change has been the focus (Machlis and Force 1988). Third, there is generally a lack of discussion around coping abilities of communities and resource management systems that differ according to the nature of the resource and extractive industry in question (Lee 1987) as well as the culture in which the interdependent relationships exist (Machlis and Force 1988). Additionally, there is a poor understanding of the combination of factors that may represent thresholds or limits of acceptable change to rural communities (*ibid.*).

These latter points highlight the role of structure and agency in the impact assessment literature—to a large extent, the structure of the development has been seen to impact people, and the multifaceted nature of change and the diverse roles people play as agents and recipients of change is not fully recognized. In turn, it hardly comes as a surprise to learn that how communities respond to change is currently one of the least understood aspects of resource management science (Gunderson and Holling 2002).

Using Genealogy and Learning Theories to Understand How People Respond to Change

Ostensibly then, a reasonable place to learn more about the *how* of community response to change is the past. Michel Foucault's genealogical method of investigation is one approach to examine historical social responses to change. This method can be traced back to the Nietzschian tradition of using historical accounts to investigate and explore broad-level problems. Deconstructed narratives of sexuality, hospitals, and prisons, institutions from which many of Foucault's empirical categories stem, were commonly used to demonstrate that social practices may indeed take alternative forms

(Flyvbjerg 2001).[5] To deconstruct modernity for example, Foucault says that it is not the outcome of some "teleological progression," for although humanity may progress, he admits, it must be understood in terms of how things happened before and how they happen now (Foucault 1980).

In this study, deconstructed narratives of social and landscape change not only tell us about the range of accumulated experiences people have with change, but how responses—or lack thereof—to change affect the unfolding of subsequent events. Experiential and social learning theories, taken in the context of natural resource management, help explain the particularities of this process.

Experiential learning theory holds true that knowledge is produced from being continuously derived and tested out in experiences of the learner (Kolb 1984); there is thus a focus on the process of learning rather than specific outcomes. Social learning is similar to experiential learning in the sense that knowledge is continuously derived, but the difference is that social learning is interpersonal. Keen et al. (2005: 4), for example, say social learning is "the collective action and reflection that occurs among different individuals and groups as they work to improve the management of human and environmental interrelations." Social learning is also known as adaptive management, and infers that the implementation of policies as experiments promotes learning (Lee 1993; 1999).

Social and experiential learning theories are also embodied in knowledge systems such as those possessed by indigenous peoples. Traditional ecological knowledge (TEK),

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[5] Foucault himself identified with Maurice Merleau-Ponty's teachings on philosophy, "to never…consent to being completely comfortable with one's own presuppositions" (Foucault 2000: 448). Immanuel Kant, one of several *philosophes* who critically questioned the meaning of the Enlightenment in its later stages, also inclined Foucault in this way.

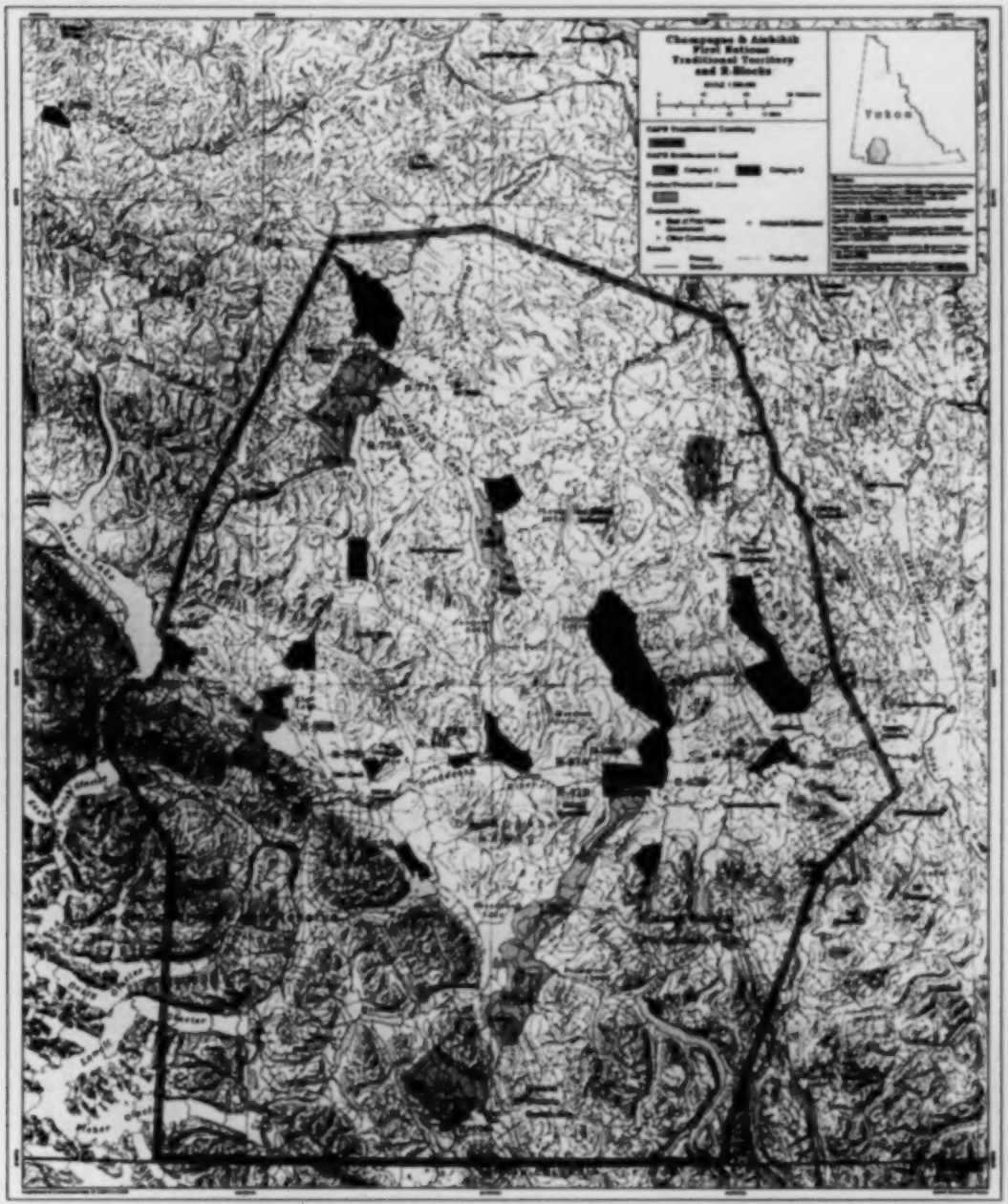
for example is understood as "the system of experiential knowledge gained by continual observation and transmitted among members of a community" (Huntington 1998: 237-238). The framework in which this learning takes place is a *holistic* one that recognizes both ecology and the interactions of humans and their environment (*ibid.*)—a framework which has garnered a great deal of attention from researchers with an interest in studying how social-ecological systems cope with and adapt to change (Berkes and Folke 1998; Gunderson and Holling 2002).

The strength of these learning theories is that they help to emphasize that communities are not always mere recipients of change; they often act as agents, participating in the design of their own futures as they learn from feedback in the "system"—and this too, may be considered a cumulative effect of change. Documenting and sharing knowledge derived from experiential and social learning is helpful for building community and institutional memory on how historical changes and responses to them influenced community dynamics, and how they may do so in the future should similar events unfold.

Picturing the Champagne and Aishihik Traditional Territory, Yukon

Before describing the methods used to study cumulative social impacts, it is necessary to point out some of the cultural, social, economic, and environmental features of the study area, because a combination of these informed the methods; these are described following figure 2.0, which shows the location and geographic attributes of the Champagne and Aishihik First Nations Traditional Territory (CATT).

Figure 2.0. Champagne and Aishihik First Nations Traditional Territory



Source: Yukon Environment, Geomatics, 2007.

Imagine you are in Whitehorse, capital of Canada's Yukon Territory, and you would like to visit the Champagne and Aishihik First Nations Traditional Territory. To

get there with the greatest ease you would likely rent a car, and head west to the village of Haines Junction on the Alaska Highway. As the radio on the dial begins to fade with the traffic of Whitehorse you will catch many glimpses of old and new if you look for them. Traces of the old and overgrown highway, originally built in 1942, will probably catch your eye. Construction of this highway or the "second rush," as many older people call it, resulted in a cultural shift far more pronounced than the first, in 1898, when thousands of men flocked to the Klondike River to partake in a gold rush that made the Yukon famous. As Julie Cruikshank (1998) writes, the highway brought many things with it, including more than thirty four thousand men employed during its construction, new technology, government administration, disease epidemics, and increased availability of alcohol.

A little further along you will see the detour through Champagne, which used to be on the main highway route. Only a small handful of folks live in this First Nations' village now, as most have moved to the major centre here, Haines Junction.

As the elevation begins to rise and the boreal valley starts to narrow you will pass the turnoff to Aishihik Lake, historically an important First Nations' village. A hydro-electric dam was constructed here in the early 1970s, in large part, to supply power to a lead-zinc mine in Faro, over four hundred kilometers away.[6]

A few more kilometers along at Canyon you will see Dimok's family run sawmill—the only forestry operation that seems to have survived over the years here. The rusted remains of the First Nations' mill, ventured a few years ago, now lie beyond the outskirts of Haines Junction. There are limited opportunities for employment in

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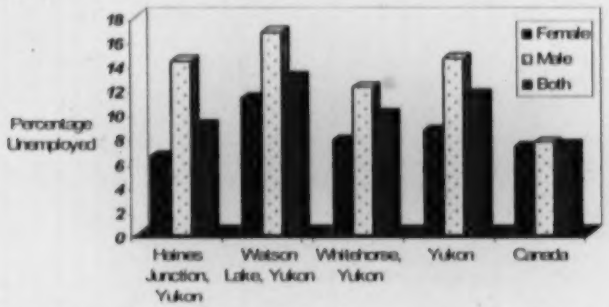
[6] According to Nicholls, (1981: 9) "there is little question that if the Anvil mine had not existed, the Aishihik project would not have been needed in the mid-1970s."

Haines Junction (see fig. 2.1), so when the sawmill went bust, widespread disappointment ensued.

Figure 2.1. Unemployment rates across territorial and national jurisdictions, 2001



Source: Statistics Canada Data Documentation for Profile Series Part A and Part B, Ottawa, Supply and Services Canada, 2001. Census of Canada.

Kluane National Park's frontal range mountains, which rise up like giant ships on the horizon, are now in sight. Kluane National Park is a place characterized by big mountains, high tundra plateaus, broad river valleys, and wildlife such as grizzly bear, salmon, moose and sheep. The landscape abounds with life here, as evidenced by scars that indicate volcanic activity, glacial flooding and surges, and wildfires. This dynamic landscape, as many call it, has generated rich oral and scientific literature (Cruikshank 1991).

A national park since 1972, Kluane attracts significant tourism to the region, which is an important part of the local economy along with the administrative engine required for its operation (see table 2.0).[7]

[7] Administration associated with the CAFN Government and Yukon Territorial Government also comprise a significant portion of the 24% value in table 2.0.

Table 2.0. Employment by occupational classification, Haines Junction, 2001

Sales and service	28%
Management, business, finance, and administrative	24%
Trades, transport, equipment operators, and related	17%
Health, social science, education, government service and religion	12%
Primary industry, processing, manufacturing, and utilities	8%
Natural and applied sciences, and related	6%
Art, culture, recreation, and sport	5%

Source: Statistics Canada Data Documentation for Profile Series Part A and Part B, Ottawa, Supply and Services Canada, 2001. Census of Canada.

Kluane National Park has its origins in 1943, when outsider interests in conservation and tourism development culminated in the creation of Kluane Game Sanctuary, and the subsequent exclusion of First Nations peoples from their traditional territories within the boundary lines (Lotenberg 1998). The park was recently opened to hunting by First Nations in an effort by KNP and CAFN to restore traditional connections people had with the land prior to 1943.

Most of the roads you'll encounter in the park are vestiges of the gold mining era; many of them are used today as hiking trails. If you followed one of these trails to the top of one of Kluane's highest peaks, you would have an impressive view of the surrounding area, and the spruce bark beetle infestation. This infestation has become the largest and most intense of its kind in Canada. From the same vantage point you will also recognize sections of the old Haines to Fairbanks pipeline, built shortly after the highway was pushed through. Agent Orange was used as a defoliant on the right-of-way in those days, which is why several sections of it still lay bare, and why many residents suspect cancer rates have been on the rise.

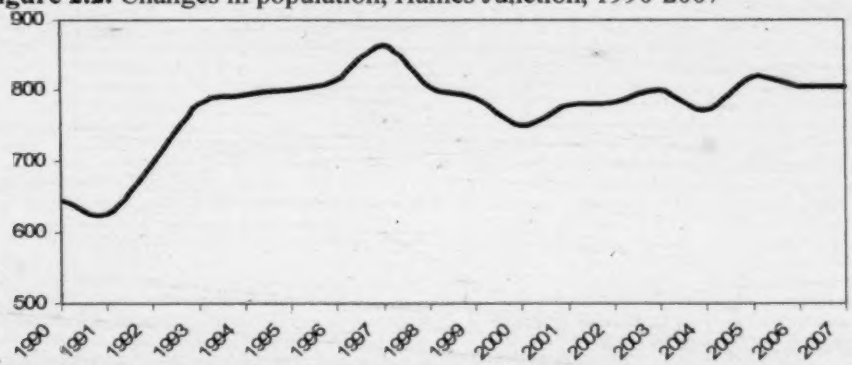
Not far before you now is the village of Haines Junction. Haines Junction was established during construction of the Alaska Highway in 1942; it was originally a highway maintenance camp, known as Mile 1016 (Hurlburt 2007). By 1945, the

government was encouraging families to move out of their traditional villages and into more permanent dwellings along the highway where services were centralized (Cruikshank 1975), which had profound cultural impacts on First Nations peoples. Relocations such as these also contributed significantly to the population growth of Haines Junction after the highway was built; creation of Kluane National Park also lead to population growth decades later (Duerden 1981).

Approximately half of those who live in Haines Junction are Champagne and Aishihik First Nations citizens, whose government confirmed the rights to lands there in 1993, after more than twenty long years of land claims negotiation. One of the most important outcomes of this negotiated agreement was that the CAFN Government was established a co-manager of all natural and cultural resources in the Traditional Territory (CAFN et al. 2004). This was a landmark agreement which designated the ownership of two thousand, four hundred and twenty seven square kilometers of land, and provided guaranteed access to fish and wildlife resources. CAFN elder Elijah Smith was instrumental in the settling of this land claim as well as others in the Yukon via his role in writing *Together Today for our Children Tomorrow*, a compelling document that influenced the Federal Government of Canada to begin comprehensive land claims negotiations (McClellan et al. 1987).

Haines Junction's current population is just over 800 people, and has hovered at this level for more than a decade now, except during the late 1990s when the population rose to a high of eight hundred and sixty two and dropped off again (see fig. 2.2).

Figure 2.2. Changes in population, Haines Junction, 1990-2007



Source: Yukon Bureau of Statistics, Yukon Health Care Registration Files (population estimates are as of June 1st for each year).

With the exception of Tagish, every Yukon community experienced a drop in population at that time, which has been attributed to the reduction in mining activity that occurred throughout the territory (Yukon Territorial Government 1999). Most current changes in the Yukon's population are associated with economic conditions (Yukon Territorial Government 2001).

In terms of important features of their communities, First Nations and non-First Nations residents of the traditional territory pointed out a variety of values when asked to describe them during interviews for this project: traditional activity opportunities such as hunting and trapping are close to home; homeland values for First Nations peoples; recreation; access to wild places; beautiful scenery from "the kitchen window"; communities are safe, quiet, and recognized as important places to raise children; opportunities for self-discovery; extensive networks of family and friends; and the cross-cultural environment.

Research Design and Analysis

From January to May 2007 qualitative data were collected through in-person, semi-structured interviews. This approach was important, because it allowed research

participants to attach meaning to their experiences of social and landscape change in a variety of ways. In addition, the very notion of change itself was expected to have broad interpretation, given the cross-cultural environment, and the history of remarkable landscape and social change. Sheila Quock, the community liaison for the project, assisted the first author with conducting most of the interviews, and engaged in cultural translation when necessary. Her role was invaluable.

In terms of interview content, it was quite an onerous task to decide which aspects of social and landscape change to inquire about, given the complex history in the CATT. Knowing that extensive anthropological and historical work had already been done on the Klondike gold rush and the Alaska Highway, resource development activities, the spruce bark beetle outbreak, and land claims were chosen as change marker topics for investigation. After consultation with members of the Champagne Aishihik Research Review Committee, established prior to the research, it was felt that these events would capture a diverse range of significant changes, and serve as effective starting points for discussion in the interviews. Sheila and I still felt it necessary, though, to allude to as much of the wider history as possible during interviews, and we did so with a timeline as a visual cue.

Using a timeline as a tool to elicit rich dialogue is common practice in participatory action research. The timeline for this study was developed by members of the review committee, the community liaison and the first author; interview participants also contributed to its development in an iterative fashion. The overall strength of using the timeline was that it allowed us the freedom to discuss focal changes without losing

sight of how they were embedded in the region's history. A reconfiguration of this timeline is shown in table 2.1.

Table 2.1. A calendar of cumulative social impacts.

1890-1900	Klondike Gold Rush
1900-1910	Residential Schools (North Yukon) Federal Indian Act Legislation
1910-1920	World War I Fur Trapping Regulations Applied to First Nations Peoples in the Yukon
1920-1930	Residential and Public Schools (Southwest Yukon) Gold Discovery on Squaw Creek
1930-1940	
1940-1950	World War II Construction of the Alaska Highway Creation of the Kluane Wildlife Sanctuary Construction of the Haines Highway Aishihik Road and Airport Built
1950-1960	Construction of Haines to Fairbanks Pipeline
1960-1970	Fuel Spill on Dezadeash Lake
1970-1980	Pipeline Closure Creation of Kluane National Park Aishihik Dam
1980-1990	Mine at Windy Craggy Mountain Proposed
1990-2000	Spruce Bark Beetle Outbreak CAFN Land Claims and Self Government Creation of Tatshenshini-Alsek Park First Nations Sawmill
2000-2010	Shutdown of First Nations' Sawmill Radioactive Water Discovered at Champagne

To gain comfort with the questions and ensure local suitability, two pilot interviews were carried out: one with a CAFN person and one with a nonaboriginal land resource manager with a great deal of experience in a variety of Yukon communities. For official interviews, First Nations and non-First Nations residents, health and social workers, and natural resource managers in the CATT were included in the sample.[8] This

[8] Members of the research review committee, the Alsek Renewable Resource Council (the local resource management body), and the community liaison provided insight with respect to potential interviewees. Interview participants also recommended interviewees based on who they thought would have expertise related to the research questions.

sampling technique, used for the purpose of in-depth study, is known as purposive sampling (Patton 2002). Criteria for the selection of participants were as follows: for residents, long-term residency was a requirement so that responses would reflect a high level of experience and learning relevant to the changes; for health and social workers, and natural resource managers, only those with key informant knowledge, living, working in, for, or with the CAFN were included. Individuals ranged in age from forty one to ninety one years, and twenty one out of the twenty seven interviewed had lived in the area for at least thirty years. Twelve women and sixteen men were interviewed, and thirteen of the participants were aboriginal, fifteen nonaboriginal. Interviews lasted between one and three and a half hours, and were carried out until saturation in the answers was achieved.[9]

The approach of grounded theory guided the data analysis, by way of the constant comparative method. Statements of relationships and concepts in the data were inductively proposed using this method, followed by verification of what was derived through comparison of incident with incident (Strauss and Corbin 1990). This allows similar data to be grouped according to categories, and is a technique commonly used across all kinds of qualitative research (Merriam 1988). Effectively, this consisted of coding the interviews into categories, subcategories, and themes using NVivo software. Concept mapping was also employed to help elucidate themes from the data. I conducted data analysis throughout the interview process, but shared the codes with my supervisor for coding validity, which created opportunities for identifying emerging themes and patterns in the data, clarifying issues, and refining research methods along the way. The

[9] All interviews went as planned except for two instances where spouses of the interviewees unexpectedly participated; these interviews were not counted as separate.

informed consent forms and interview guides used in the interviews may be found in Appendices A and B respectively.

To share findings and verify interpretations of the data, a workshop was held in November 2007 to check participants' constructions of social and landscape change with research participants. This kind of verification is known as member checking, and is what some consider most fundamental to establishing research credibility (Lincoln and Guba 1985). This process had the added benefit of stimulating social learning, in that participants not only heard reconstructions of their own experiences of social change, but those of others. Social learning has been recognized as important to the overall health and well-being of any community, because it fosters open discussion of problems and their solutions, and in this case, contributed to the breadth of collective memory and knowledge on social change. Another objective of the workshop was to initiate discussion around a set of cumulative social indicators implied from the findings, which may serve useful to the First Nations and others when planning for the social impacts and benefits that may occur with future development.

Research Approach

Reflecting on what most characterized the research experience, the community-based approach comes to mind. According to Tuhiwai Smith (1999), social research at the community level is typically referred to as community action research or emancipatory research. Community action research is defined as "a collaborative approach to inquiry or investigation that provides people with the means to take systematic action to resolve specific problems" (Stringer 1996: 15). This model is

becoming increasingly important for researchers to gain legitimacy not only within the communities they work, but especially in the field of aboriginal research.

Our collaborative approach took several forms, including development of a legally binding research agreement, which outlined ownership, control, access, and possession principles conducive to the conduct of ethical research and protection of First Nations' values (see Appendix C for research agreement). The protection of values such as traditional knowledge through close review of any public use of material is one example of how First Nations values were safeguarded vis-à-vis this process. The agreement was created in partnership with the CAFN research review committee.

For the duration of the project, a key contact at the CAFN provided invaluable assistance when it came to gaining formal support from CAFN for the research, keeping me abreast of important internal political issues, coordinating the hiring of First Nations members in the conduct of the research, and many other important tasks. It is quite likely that broad institutional-level support and interest would not have been gained were it not for this keystone relationship.

Capacity building was key to our approach, and involved collaboration with several CAFN employees in all stages of the research through either their involvement in the research review committee or their employment/involvement in the interview and workshop components of the study. Furthermore, because of the wide involvement of community members, the research contributed to the existing abilities of local people to engage in processes relating to the social impacts of land use in the region.

Findings and Discussion

In light of the changes discussed with participants in this study, cumulative social impacts unfolded according to a host of factors, such as how local voices have been silenced and empowered over the decades, the ways in which projects were managed, how long they lasted, condition of the land, and availability of resources; the extent to which reorganization and learning occurred in management institutions as well as at community and individual levels also played a role. In order to demonstrate the recipient-agent dialectic of change, the factors that influenced change and the subsequent reorganization and learning that took place will be highlighted in the following set of storied themes. Numerous quotes from interview participants have been woven into the text for the purpose of grounding this work in the voices of its informants.

The Local Spectrum of Silence and Voice

When contemplating cumulative social impacts in the given context, events such as the gold rush of 1898, the experience of residential school, and creation of Kluane National Park are important markers of change. In part, because they are locally remembered as events through which voice suppression and cultural loss transpired. Although not discussed at length during the interviews, the Fur Trade, and constructions of the Haines and Alaska Highways are also significant to this history. All of these changes are well known to both oral and documented history, but they take on slightly different meaning when considered in more contemporary respects.

Take the effects of modern-day mining activities for example. One participant felt he could not discuss these without mention of the 1898 gold rush, because mining had set the stage for the kind of people who came to southwest Yukon, "it is how things

started here and how things proceeded." As he states in the following quote, the gold rush marked the beginning of an era in which First Nations culture had little importance in society:

> Here, you had a group of people whose whole focus was on the resources in the ground and they really didn't care about whether there was native people there or not, and so consequently, your whole culture takes an immediate kicking, because there was a whole group of people who really weren't there to talk about what your culture was or anything. They weren't even there to talk about theirs. They wanted to know where the damn gold was, that's why it changed so fast here...in the very beginning the people who mattered didn't matter to the ones who came.

The early part of the twentieth century was a time of rapid change for many First Nations peoples, for reasons including: the influx of outsiders and the different values they brought with them; the introduction of new technologies, alcohol, and the wage economy; and the lack of effective communication between "insiders" and "outsiders" due to language barriers. These changes had a profound impact on how First Nations peoples moved around and used the land, and by extension, their cultural values. As stated by the same participant, many First Nations peoples were "overwhelmed" with all that was going on. And by the time residential schools were institutionalized in the Yukon, he went on to say, there were few to "argue the case" for First Nations peoples.

In the Yukon, the first Indian schools were reported to be operating by 1892.[10] In Canada, residential schools had their start several decades earlier, just after the turn of the nineteenth century; the last one in Canada—New Christie at Tofino, B.C.—closed in 1983-1984 (Claes and Clifton 1998). From the mid-1800s to 1970, nearly one third of all aboriginal children were in residential schools, and many of them remained in this confinement for most of their childhood (Fournier and Crey 1997).

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[10] The first recorded missionary visit to the Yukon was in 1861, by William West Kirkby of the Church Missionary Society (Almstrom 1991).

Original intent behind the schooling of First Nations in Canada was to convert them to Christianity, in its various forms. Early Euro-Canadian missionaries initiated this practice, which involved educating the 'natives' so that they understood what conversion meant, so that they could become 'civilized' enough to embrace European values, and so they would eventually become assimilated into a European lifestyle (*ibid.*). These attitudes were supported by the Canadian Government and later embodied in federal policies such as the British North America Act, the Indian Act, and education policies.[11] Cultural oppression thus became an accepted agenda of national-level governance. And as Dori Laub (1995) said about the crimes of Hitler, the Canadian Government's crime was not only in committing acts of cultural genocide, but in convincing aboriginal peoples that they deserved it.

Creation of the Kluane Game Sanctuary in 1943, which later became Kluane National Park, emphasized the gold rush's legacy of cultural loss, because once again, outsiders came in with their own agenda and made little room for First Nations. Prior to 1943, First Nations had long used the park area for traditional activities including hunting and trapping; parts of the region actually included their own traditional territory.[12] However, in April 1942 when construction of the Alaska Highway commenced, the territorial government made an offer to the thousands of road builders that would alter the lives of First Nations peoples in the region for decades to come.

With permission from the Yukon Council, resident hunting licenses were granted to those engaged in highway construction as a way of encouraging progress in the region (Lotenberg 1998). Evidence of wildlife declines were apparent shortly thereafter,

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[11] Although original residential school policies were based on assimilation, they evolved according to government shifts in its treatment of aboriginals (Claes and Clifton 1998).

[12] The Kluane First Nation's Traditional Territory, north of the CATT, was also included in the park.

because of an increase in the number of people relying on wildlife as a source of food (*ibid.*), and servicemen shooting wildlife "for sport" (Hoefs and Cowan 1979). Various concerns from outsiders eventually resulted in creation of the Kluane Wildlife Sanctuary, for which conservation and tourism development were primary motivations (Lotenberg 1998). Despite resistance of local First Nations peoples, they no longer had entitlement to subsistence resources in the park area, though concessions were frequently made to mining and sport-hunting interests (*ibid.*). This history is shared with other parks in Canada, such as Banff, where policies prohibiting aboriginal subsistence were rooted in the goals of conservationists and sportsmen (Binnema and Niemi 2006).

Erasure of First Nations culture had extended well into Kluane's National Park era. By 1972, not only were First Nations peoples facing legal sanctions if caught hunting or trapping within park boundaries, there was little recognition of First Nations culture and values in operation and staffing of the park, as the following participant observed:

> They didn't hire cultural people. They had interpreters, but they weren't cultural people either 'cause they were all from outside the Yukon…again it goes back to the gold miners. They're looking for the gold. Parks people were looking for the park. They were looking for the mountains, and the skiing, and the wildlife, and the Indians were in the way again.

Like the gold rush and residential school, creation of the Kluane Wildlife Sanctuary and National Park had an effect on the integrity of Champagne and Aishihik First Nations culture, which people have continued to remember. Collectively then, changes such as those discussed here help us understand how impacts from independent events can accumulate and interact over time. By seeing with a cumulative view in this way, one

gains a deeper awareness of one of the CAFN's responses to this history: the desire for a voice with two distinct temporal dimensions.

One of these dimensions pertains to management of contemporary issues; the other is retrospective so that impacts from the past may be addressed.[13] Cultural repatriation is a central component of both of these dimensions, and land claims and the freedom of self-government have returned cultural opportunities back to people through a variety of means such as arts and culture programming, development of a cultural centre, and cooperative projects such as Healing Broken Connections (HBC). HBC aims to reconnect First Nations peoples to their traditional territory within the national park and to understand how traditional knowledge can be incorporated into decision making. Not to rule out the possibility that culture has been maintained through undifferentiated means such as political decentralization and family relations, which have enabled many North American First Nations to resist assimilation and colonialist-induced change (Champagne 2007). All in all, the foundation of cultural capital that has been built in the CATT will likely influence the ways in which future health, social, and cultural impacts unfold, as one interviewee asserted:

> I think that with land claims and the wealth that has been generating in the community that there are tremendous opportunities with our culture…that's why I think the future is very promising for our young people, because they'll have that pride, that knowledge, that understanding, and the desire to know more.

Management of Expectations

Another factor that influenced social impacts and responses to change is the way expectations have been created and managed over time. In the interviews, many local

[13] Other aboriginal groups in Canada have a retrospective component to their management practices, largely because previous resource developments were approved at a time when notions of environmental and social justice were underdeveloped, and thus approved in the absence of environmental or socioeconomic impact assessments (Notzke 1994).

people expressed dissatisfaction with a number of government-run projects, the effects of which have been variable and long lasting.

At federal and territorial levels for example, the Aishihik Dam was promised to have no impact on the water level of Aishihik Lake or Otter Falls, important cultural and recreation sites.[14] To the contrary, water levels rose significantly and Otter Falls slowed to a trickle. A complex range of social and environmental impacts were experienced as a result of these and other changes, as participants recalled during the interviews (shown in table 2.2).

Table 2.2. The Aishihik Dam: expectations and impacts

	Expectations Not Met	**Impacts**
Aishihik Dam	No damage to Aishihik Lake or Otter Falls; cheaper power.[15]	Loss of a lifestyle for First Nations peoples; decreased sense of safety while travelling on lake; fewer Whitefish (an important subsistence species); erosion of gravesites and other cultural/historic sites into the lake; anxiety about drinking the bones of ancestors, because of the disease epidemics that caused many of their deaths; loss of traditional berry picking areas.

Some of these impacts have been addressed through a public hearing, requested by the First Nations in response to the Territorial Water Board's call for a license renewal for the dam. In essence, the hearing was an opportunity for citizens to discuss impacts they endured during the first license period, prior to which they had minimal input. Ironically, despite intensive relicensing and financial compensation processes, which have collectively addressed some of these impacts, residents' sense of trust regarding management of the dam has been significantly eroded:

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[14] The Aishihik Dam is currently managed by the Yukon Territorial Government, but during its initial operation, the Northern Canada Power Commission (NCPC) held management title.

[15] Power was made cheaper to Yukoners in general, but residents of the CATT did not receive an additional discount rate as expected.

> There's a new drinking well that went in and there's been a community building built in Aishihik, but I think people are not trusting anymore, and they're very cautious. It's kind of like, "all right you, you're doing it right now but I'm going to watch you, because I know if I turn my back, you're going to pull the wool over my eyes."

Another finding related to management of expectations is Kluane National Park. As with the Aishihik Dam, local people had expectations about the conditions of its operation. Some of these expectations, as well as other park-related impacts interview participants described, are listed in table 2.3.

Table 2.3. Kluane National Park: expectations and impacts

	Expectations Not Met	**Impacts**
Kluane National Park	More tourists and wealth generation in community, "Banff of the North"; increased local business opportunities.	Increased regulation of human behaviour; First Nations subsistence activities barred within park boundaries (beginning in 1943); loss of small-scale surface mining opportunities; disappointment over management of spruce bark beetle outbreak; lack of development.

The hopes that fell with the park in combination with other unexpected impacts, such as a feeling of helplessness in light of the park's hands-off approach to management of the beetle outbreak and increased control over human behaviour, resulted in resentment towards Kluane National Park on the part of some citizens as illustrated in the next two quotes:

> In terms of a resident living here, while it's never stated, to me that is a place I don't go to. I don't feel welcome. It's put there to preserve what's there and to preserve the wilderness, but because of what I was able to grow up with here, where the wilderness is just at your backdoor—a place like that you feel monitored or watched all the time. If you're going to stay overnight you have to register, so it doesn't feel like wilderness to me. It's too managed. I feel more like I'm in the wilderness driving up a road to my brother-in-law's placer mine.

> If we ever get a fire here, they say we won't die from the fire. We'll die from lack of oxygen because it's going to be so hot, and I blame Parks for that, because they were here and would not do a thing [fire-risk management within park boundaries for example]. Parks has been one of the biggest detriments to this

town as far as economy, because they won't let anything happen beyond those mountains.

At the heart of discontent over the park's operation in the region seems to be dissension over how the park itself is managed. For the park, management is guided by principles of ecological integrity, meaning that "the structure and function of the ecosystems with their various wildlife habitats are unimpaired by human activity and likely to persist" (Kluane National Park 2003). This approach has been perceived by many locals as inaction when considered in certain contexts, such as management of the beetle outbreak, which did not include logging or controlled burning—outcomes that many residents hoped for.[16] Additional disdain for the approach has roots in the exclusion of First Nations peoples from their homeland areas when sanctuary boundaries were delineated in 1943, as this woman describes, when asked to explain the role of local resource management agencies:

> The only thing I was really unhappy with was Kluane Park, in one regard—Kluane Park and the Spruce Beetle, and how they did not foresee what needed to be done. They maintained their course of no fires within the park, let nature take its course, and this is the way things have been done for a millennium, without looking back and really seeing…it just didn't make any sense to me that they wouldn't be looking at all the evidence that was there. Instead, ecological integrity, this is the way it's got to be. And yet to me, by letting nature take its course, well, then you should let the people come back into the park…because the people were a huge part of nature, a whole part of the ecosystem and using the park…it just didn't make any sense to me.

Again, we see how effects from historical events such as the exclusion of First Nations peoples from Kluane National Park, colour contemporary experience.

Another project that produced impacts related to peoples' expectations is the First Nations sawmill project, which was initiated, in large part, because of political pressure

[16] Although logging action to control the outbreak was not taken when hoped for, some cutting has taken place to manage the perceived fire risk to residents.

to provide long-term jobs to CAFN citizens. The sawmill went bust for a number of reasons people reported, including poor planning, poor management, and little control by members of the CAFN Government, because they were occupied with implementation of land claims at the time (outside managers were appointed to run the business).

The CAFN not only lost money and confidence in future investment projects with this experience, those who were trained up for the work were left behind in the end, and the history of a lack of opportunities for locals to live there only exacerbated the disappointment. Coping with this letdown was extremely painful for those who worked at the mill, and many of their extended family members. According to the interviews, some of what surfaced in the community was increased stress, alcoholism, and two tragic unexplained deaths. Even though the mill shut down more than six years ago, people still express their embitterment towards it as a failed enterprise, as this woman reflects:

> It did something to the community, the people who had worked there, where we ended up with this great big show. Thinking that we could do something grandiose. Getting the hopes of our people up. And then it fell…I think in a social sense that it affected our people more than what we would really think it did, in a negative way. I think we ended up with more of a social problem at the end. Clawing ourselves back up from that, in a social sense, is something that I think is going to take us a bit longer than if we didn't manage it in the way that we did.

Disappointment and distrust seem to underlie individual responses to development that have been discussed here. The importance of individuals investing their trust in local institutions such as corporations and governments is that it contributes to the functioning of overall social capital within a community. Such distrust may, for example, affect public participation in impact assessment processes that consider development activities, which has happened elsewhere. Shapcott (1989: 64) notes that some aboriginals have rejected participation in the impact assessment process on the

grounds that it is a "legitimization of the status quo that asserts foreign sovereignty, laws and regulations over their land."

In this context, the experiences residents have had with the sawmill, the Aishihik Dam and Kluane National Park may serve to affect reception of future development projects, processes for their approval, and the policies and promises that may or may not come attached to them. Future parks policies that fall under the "ecological integrity" mandate for example, may gain little support, because of the negative impacts both aboriginal and nonaboriginal peoples associate with it.

Also important to highlight here, as a response to development, is that institutional reorganization and constructive learning have occurred within the CAFN. Rather than view the sawmill as simply a failed enterprise, the CAFN Government sought to learn lessons from their experience, which are designed with the well-being of citizens and government in mind. Two important lessons the First Nations learned were (1) reaffirmation that business decisions must be made in line with reasonable financial returns, and (2) CAFN governance and corporate development do not necessarily mix. The experience also affirmed the notion that future development be done in conjunction with social healing, as this man states:

> ...when you look at development or any job creation I think you have to look at the social development of people, or the social healing of the people, because when they started that sawmill up, they hired a lot of locals who had problems with drugs and alcohol. When the first payday came, they didn't show up for work, and that's because they're still suffering from alcoholism or drug addiction. They both go hand in hand. You have to *heal* the people as well as encourage development and job creation.

What Kolb (1984:1) says about the significance of human agency in the context of learning is extremely relevant here, "we are thus the learning species, and our survival

depends on our ability to adapt not only in the reactive sense of fitting into the physical and social worlds, but in the proactive sense of creating and shaping those worlds."

Connections between the Land and Well-being

Complex linkages between the land and well-being are being recognized by researchers from across a range of disciplines such as epidemiology and other variants of medicine (e.g. Muckle et al. 2001; Kearns 1993), social sciences such as anthropology (e.g. Cassady 2007; Adelson 2000), political ecology (e.g. Richmond et al. 2005), resource management (e.g. Greiner et al. 2005) and other related disciplines (e.g. Wolsko et al. 2006; Korpela and Ylen 2007). In this study, two dimensions of these connections arose as prominent themes for both First Nations and non-First Nations peoples: state of the land influences individual perceptions of well-being; and the land enables people to adapt to change.

Beginning with the first theme, when asked to describe some of the best things about living in their community, many participants cited the land as one of the reasons. Responses such as "this is god's country," and "it's an incredibly beautiful landscape," were common. However, the recent beetle outbreak has transformed the local environment, and unique social impacts have been observed as a result. One such impact is a shared sadness among many residents. In table 2.4 are some of the expressions of grief that were articulated, grouped according to First Nations and non-First Nations participants.

Table 2.4. Attitudes toward beetle-affected forests in the CATT

Non-First Nations Participants	You just feel like you're driving through and looking at this, you can't call it a dead forest, but that's the word that seems to come to mind, because all those trees are dead. It just doesn't look as good, so it doesn't feel like you're living in the same place that you grew up. It hasn't happened so much yet in our Haines Junction view, but its coming. There's a little more and more, and some day I guess it'll look here like it does up by the south end of Kluane Lake. When you look out over that landscape, it's totally grey, and I suspect that's what that hillside will look like some day. Yuk. The forest isn't pretty anymore, and it's something that is on your mind. Last summer someone caught a little fire that was started at Kathleen Lake. When you hear about things like that, if people catch them, it's fine but if they don't, you know. So it's something that's definitely on your mind that never used to be, and the same thing with tourists driving through. It was a beautiful country to drive through. Now it's just grey, reds. It's ugly forest, driving through. And there's miles of it. Miles of it.
First Nations Participants	I think it just makes your spirit feel very heavy. And if you have a sadness within you, like I flew in a helicopter, and you look, and that sadness that you feel is just…it doesn't do well for you as a whole. I think the effect it has on people is that when you're walking through the bush and you see all these dead trees, it doesn't give you a good feeling. Whereas you're walking through the bush and everything's green and vibrant, it gives you a good feeling. But when you're walking through a dead forest that kind of puts a damper on your spirit, and your outlook on things. When I first realized that these trees were dead I just about cried. I was so choked about it, and I think it took a whole season for me to grasp the idea that the trees were dead…I come from a very spiritual family and my grandmother was a medicine woman, and used to say that we go to other things, like plants or rocks or whatever, to assume energy. To get good energy. And there's just certain trees that, they're alive. They're alive and they have a spirit and, for me, it was like, they're dead.

For non-First Nations participants, place identity, loss associated with aesthetics, and personal security regarding fire risk characterized their attitudes toward beetle-affected forests in the area. These impacts are in line with aesthetic and emotional impacts experienced by people of southeast Alaska over the Kenai Peninsula's Spruce Bark Beetle outbreak (Flint 2006). Interestingly, Flint found that levels of these and other perceived impacts were related to timing and magnitude of the outbreak. For example, one community had reached a peak in terms of expenses to set up their forest industry by the time the beetle outbreak occurred. With this in mind, it seems reasonable to suggest that land managers consider these factors when contemplating when and how natural resource development should occur.

First Nations respondents also reported sadness in response to transformation of the forestscape, but this came out with more specific reference to personal outlook, and spiritual and holistic wellness. This unique relationship between condition of the landscape (and by extension how it is managed) and spiritual dimensions of wellness relates well to Panelli and Tipa's (2007: 447-448) finding that "indigenous conceptualizations of well-being are influenced by lived experiences within their natural, social, spiritual, and cultural worlds." As more young vibrant spruce trees comprise the forest canopy, a process currently underway in the CATT, how might perceptions of wellness or outlooks on the future change?

Moving to the second theme on the land and well-being, the following are some examples that research participants cited of ways in which features of the native and non-native landscape facilitate adaptation in the long-term. Beginning with the latter, some locals who do not feel welcome within Kluane National Park's boundaries utilize non

park wilderness areas instead. There is evidence, from one woman, that certain aspects of her place attachment help her cope with the beetle outbreak. Beauty of the area is part of her attachment, and because of the local mountain scenery she still feels this connection.

In terms of features of the native landscape that enable adaptability, there are many. During the early gold rush days First Nations' entrepreneurs participated in the wage economy by supplying miners with moose meat from nearby areas. Their wives had their own version of adaptability by establishing a fish camp at nearby Dalton Post, so that while their husbands were off in the gold fields, they could cut and dry fish to provide for their families. A short time later, when disease epidemics associated with the Alaska Highway were introduced into the country[17], some Champagne and Aishihik members kept their families in the bush to avoid the spread of disease. With respect to the beetle outbreak, some believe that if Champagne and Aishihik members had been spending more time on the land during its early stages, more meaningful action could have been taken at the time to prevent its spread.

A more complex example of the land enabling local adaptability relates to the Haines to Fairbanks Pipeline. Prior to local awareness of contamination on the pipeline right-of-way, many First Nations peoples viewed the corridor as an opportunity to more successfully gather berries, set rabbit and gopher traps, and hunt for moose. According to some participants, announcement of the contamination did not have as much of an impact on aboriginal hunting and gathering patterns as it could have, because of an abundance of

[17] Because of native encounters with non-native soldiers and project workers associated with the Alaska Highway, the following diseases devastated native health in most southern Yukon bands: measles, German measles, dysentery, catarrhal jaundice, whooping cough, mumps, tonsillitis, and meningitis (Marchand 1943).

alternate subsistence resources. Similarly, after recounting anxieties related to a separate contamination incident that tainted well water in Champagne, one participant said "of course, we still got the river too."[18] He was referring to the Dezadeash River here, which still flows pure through his community. Both of these examples demonstrate how local people were better able to cope with contamination incidents, because of the availability of other resources.[19]

In the face of a variety of change, many of these examples demonstrate the ingenuity of First Nations peoples and their adaptability to ensure local food security and survival. Adaptability is also an esteemed characteristic of their cultural identity:

> Interviewer: why do you think it might be that [your] people really embrace change?
>
> Participant: I think it's in our makeup. Through the centuries we were the middlemen for the Tlingit fur traders. They came in from the coast and our Traditional Territory sat right next to where they came in from, and we embraced a lot of their cultural ideas...So I think through the centuries we've adapted to change, and we're still doing that. We're conditioned to do that...we're different from other First Nation people in the Yukon in that sense.

There is also a political dimension to this theme, in that knowing the land has historically been key to good management. For instance, successful mitigation of and responses to impacts from the Aishihik Dam and the pipeline were based on political awareness of the state of the land, and effective research skills. Comparably, one First Nations elder asserted that he lacked confidence in the person responsible for negotiating the salmon decline issue on behalf of the First Nation, because "it's a person who doesn't know the area and the land."

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[18] Several cancer related illnesses and deaths have been associated with this contamination incident.
[19] Despite this case in point, the perceived negative effects from contamination of the pipeline right of way, i.e. those that are cancer related, are still recognized.

In recognition of their relationship history with the land, which seems to include that health, social, and cultural impacts of a variety of changes were made less because of these relationships, CAFN land claims policies are bringing people back to the land. This set of learned institutional policies is important for perpetuation of First Nations' cultural identity and adaptation to change, as this woman said:

> The land to me, that's what's going to save us I guess you could say. That's what's really key. That's what's been able to keep us adapting and changing, adapting to the changes so quickly, is because of the land, what the land has been able to provide and teach us.

Temporality and the Shaping of an Impact Experience

A wide variety of short and long-term development projects are etched onto the record of experience in southwest Yukon. Construction is one of the most common forms of short-term employment in the area, and has included projects such as the pipeline, a microwave tower, the Aishihik Dam, a tramway, and ongoing highway maintenance; the First Nations' sawmill also operated for a short period. Long-term projects on the other hand, have been fewer and further between, including Kluane National Park and operation of both the Haines to Fairbanks Pipeline and the Aishihik Dam. Interviews revealed some important differences between the kind of people short and long-term projects attracted, and in how some impacts were experienced and remembered as a result.

Although participants remembered that some locals were employed by short-term projects, they attracted many young single men from outside the traditional territory who worked the duration of their respective projects and then left. A number of negative impacts were experienced by First Nations and non-First Nations residents as a result including the following: a changed "character" of the community; increased drug and

alcohol abuse, and spousal abuse; spread of communicable diseases; and alienation of local women from the community, because of their involvement with outsider male workers. It was also conveyed that parents of locally employed workers felt grief over the alcohol abuse their children suffered, how that affected their children's children, and that the forestry operation went bust so quickly—they felt the workers were not given the chance to "rectify" themselves, as one participant noted. For First Nations peoples, a fear of outsiders was felt, as this man explains with reference to construction of the pipeline:

> There was a fear in the communities of the workers, and people would lock themselves in their homes to stay away. There were stories of people [pipeline construction workers] trying to knock down doors and ramming the cabins with vehicles to get in. It wasn't a pleasant time. First Nations people at the time were not viewed as rightful owners of the land, nuisances that had to be put up with. It was just a different attitude and First Nations were not organized. There was no power, no influence. You had to rely upon, in some cases, up around Burwash, priests or ministers or someone who had the ability to write a letter to act on your behalf.

In this statement we are, yet again, reminded of the theme *local spectrum of silence and voice* in that the impacts experienced here largely depended on the degree of First Nations influence at the time.

Interestingly, many of these findings overlap with the natural resource sociology literature on rapid growth and boom towns. For example, it is well documented that boom growth may produce an increase in social problems such as substance abuse (Dixon 1978), family breakdown (Kohrs 1974), changes in community satisfaction (Smith et al. 2001), and increased perceptions of social isolation (Gilmore 1976; Greider et al. 1991).

However, positive changes from short-term projects were also part of participants' impact narratives. For example, some participants described the increased

sports team activity that came with the dam's construction period as positive, as well as the associated funds that supported upkeep of the community hall.

When it came to long-term projects, such as operation of the pipeline as opposed to its construction, impacts were described differently, because of the many families who became entwined in community life over time. A number of families with children who came to work on the pipeline were eventually regarded by some as social cores of the community, because they participated in many aspects of community life important at the time, such as attending church, volunteering, and participating in sports tournaments. Similarly, many remember the park and land claims settlement as bringing stability to the community through family employment. Some reported that the establishment of the park helped create a middle class in Haines Junction.

In addition to differences between short and long-term development projects, are commonalities. The added employment and wealth generation from both short and long-term projects was a common benefit noted by interviewees. Another common impact across short and long-term projects was division in the communities based on those who supported and opposed growth. The creation of Kluane National Park, for instance, is locally remembered as one of the first development projects that polarized the community. There have been others since, including forestry projects, and a large copper mine that was proposed in the British Columbia portion of the CATT. Town division based on opponents and supporters of growth is not uncommon as Gold (1974) demonstrated in his study on coal development in southeast Montana. See table 2.5 for a summary of the impacts and benefits recalled by interview participants with respect to short and long-term development in their community.

Table 2.5. Impacts and benefits of development activities

Short-Term Projects	Long-Term Projects	Common across Short and Long-Term Projects
Fear of outsiders	Community vitality	Town division based on opponents and supporters of growth
Changed "character" of community	Stability via family employment	Employment and wealth generation benefits
Increased drug, alcohol, and spousal abuse		
Spread of communicable diseases		
Alienation of local women from society		
Parental grief over children's disappointing experiences with the sawmill		
Increased sports team activity; financial support to community hall		

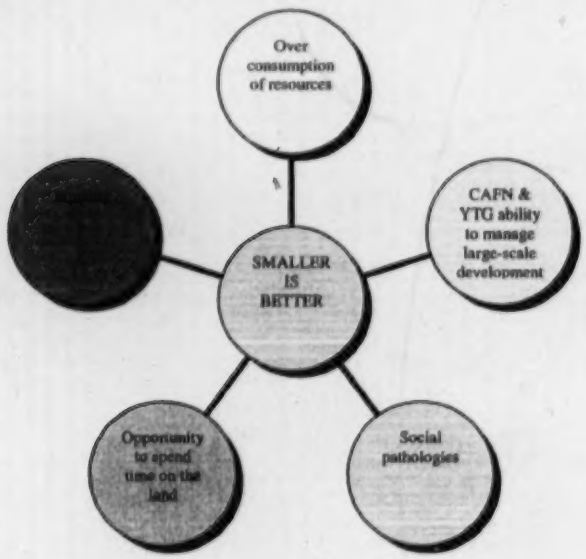
Collectively, these experiences have evoked greater consensus around the following features of future development: fair distribution of benefits and avoidance of negative social outcomes such as further community conflict and substance abuse, which weighs especially heavy on the minds of community leaders and residents after the recent sawmill project. People would also like to see more capacity building so that locals can take advantage of employment opportunities without leaving home, a culturally preferable circumstance for many First Nations, as this man states:

> if we don't have enough economics to keep our people going here, we're going to be moving away again, and of course, then that changes the environment. They'll be other people moving in, because they like the area. Maybe good enough people, but those are not my people. And culturally, that's not preferable to me. That's happened everywhere down south. There's some First Nations who have become just about cleared off the map, because they got overwhelmed with what was going on, and so they lose overall, and one of the things you would lose is your culture…culture is very important to me.

Impacts Depend on Scale

Perhaps one of the most captivating aspects of learning and desire noticed in the data relates to acceptable scale of resource development. Although there were some contrasting views, many aboriginal and nonaboriginal people identified with small-scale development for a variety of reasons that are summarized in figure 2.3 below.

Figure 2.3. Impacts depend on scale of development


Over consumption of resources
CAFN & YTG ability to manage large-scale development
SMALLER IS BETTER
Opportunity to spend time on the land
Social pathologies

Despite there being comparatively little development within the traditional territory's boundaries, its residents have made acute observations of large-scale mining, oil and gas, and forestry projects in the Yukon and elsewhere. Participants mentioned specific places as outcomes to avoid.[20] Concern about the overconsumption of resources, financial and racial inequalities, social pathologies, and contradiction with community values were some of the reasons people named when asked about why these particular outcomes were significant to them. The next three quotes illuminate these concerns:

[20] The Klondike gold fields near Dawson City, Yukon; the Anvil Mine in Faro, Yukon; Fort Nelson, British Columbia; the oil sands of northern Alberta; and Fairbanks, Alaska.

> I remember years ago talking with some people from Alaska who had experienced the pipeline up there, and they talked about how unfit it was to live there now, and I don't know if that was a majority or a minority opinion or not, but it had ruined their reasons for living where they did. I'm not sure where it was. It was near Fairbanks somewhere…the pipeline itself and all the workers and all the stuff that came with building the pipeline near where they lived, in their eyes anyway, it was bad. Yeah, so I'd just hope that wouldn't happen here. Smaller is better.
>
> I wouldn't like to see virtually anything go big scale, so that we have a hundred logging trucks a day going through Haines Junction or something like that. I mean all of a sudden it changes everything…a shift in the economic equality within the community, and with that comes potentially more drugs. I wouldn't like to see stuff like that. I think we're really geared towards small, local-type resource extraction or resource development, and sustainable for whatever part we can.
>
> I don't like to go to Dawson City very often just because it reminds me of…it's almost like rape. It's like somebody raped the land. I think in those terms as well for clear cutting. I just think that land should be left as it is, and not taking so much, and you see that in Dawson City.

These are not uncommon sentiments for people who have lived through fast-paced or large-scale resource development. In her study with two mining communities in the American Midwest, for instance, Wilson (2004) found that it was the severity and frequency of change that people found most difficult to come to terms with.

Many of the concerns depicted in figure 2.3 can also be traced to events in the local history. Overconsumption of resources for example, very much relates to peoples' sensitivities over the depletion of subsistence species in the traditional territory. Moose in particular, have been influenced by local events participants alluded to including the following: hunting that occurred in conjunction with mining in the Squaw Creek area in the 1920s and 1930s; construction of the Alaska Highway; establishment of roadways for the placer-mining industry; instigation of the cow-moose hunt by YTG in the 1980s; and the Spruce Bark Beetle outbreak. Culture is a consequential part of this sensitivity, especially when it comes to declining salmon populations in the traditional territory.

That is, some CAFN members traditionally identify themselves as "fish people,"[21] and the commercial-harvest pressure in Alaska, in addition to other pressures, is threatening perpetuation of this identity. Thus, a wide variety of factors such as human access, harvest pressure, government regulations and the influence of these on culture and state of the land already contribute to local peoples' concerns about the overconsumption of subsistence resources.

Management of current and future resources is another concern rooted in local matters. With respect to existing development, one CAFN employee said the First Nations' government was not able to address concerns they had with a placer operation in the area, because of a lack of capacity. In the face of potential projects like the Alaska Highway Gas Pipeline[22], a few participants questioned the abilities of both the CAFN and YTG to manage such large-scale development. This data suggests that capacity is an issue no matter what the scale of development.

Lastly, in this discussion of concerns that relate to scale of development, is the idea that small-scale development provides people with ample opportunities to spend time on the land. Even though some negative impacts associated with placer mining were pointed out in the interviews, many First Nations and non-First Nations participants commented on how these small-scale locally owned mines afford them meaningful opportunities to spend time on the land with family and friends. Some participants even

[21] Many of the ancestors of people who came from Champagne lived in the upper Alsek drainage where they relied upon salmon for their livelihoods (McClellan 2001).

[22] This pipeline would begin at Prudhoe Bay, Alaska, parallel the oil pipeline to Fairbanks, follow the Alaska Highway through the Yukon, northeast British Columbia, and into Alberta; there are currently two proposals for the Canadian portion of the pipeline (Government of Yukon 2006). The pipeline was first proposed in the 1970s, and the first public inquiry was held 1976.

said that small-scale placer mining was of interest to tourists, thereby supporting another important small-scale industry to the local economy.

Conclusion

The primary objective of this study was to understand more about cumulative social impacts in a context that considered important local markers of change such as resource development, land claims, and the Spruce Bark Beetle outbreak—all amid the backdrop of a history relevant to local people. Consultation with First Nations and non-First Nations community members over what kinds of changes to consider in such an analysis was crucial to the relevance of the assessment and should be part of the scoping process in any cumulative social impact assessment.

This local-historical approach led me to discover a variety of factors that affected how social impacts from change took shape in the region, including how local voices have been silenced and empowered over the decades, project management and temporality, condition of the land, availability of natural resources, and institutional learning. Similarly, other longitudinal studies on the social effects of natural resource development reveal the importance of considering changes in addition to development itself, such as legislative and administrative changes, and behaviours by proponents and local people (Ross 1990); local-historical events (Force et al. 1993); and the social, cultural, and economic state of the community, the type and size of the industrial project, as well as the status of land claims (Angell and Parkins 2007).

These findings also suggest that peoples' desires for future change are bound up in lessons they learned from previous change—both observed elsewhere and personally experienced. It seems that recognizing these desires is key if communities are to generate

models of development that are compatible with their needs and desires, ecological limits, and connected to a history of experience.

Understanding how social impacts accumulate and interact over time has required a broad view of a number of things in this case, including history and future, the types of social and environmental changes considered, and the role of specific players. This multidimensional perspective gives us insight into the historical origins of contemporary ideologies and problems, how they may be addressed, and how prospective landscape and social changes may manifest. By engaging in such investigations, community members and policy makers can better participate in cumulative impact assessments and development planning that addresses a range of relevant issues, from a reflective, historically informed vantage point.

References

Adelson, N. 2000. *Being Alive Well: Health and Politics of Cree Well-being*. Toronto: University of Toronto Press.

Almstrom, M. E. 1991. *A Century of Schooling: Education in the Yukon 1861-1961*. Whitehorse: Privately Printed.

Angell, A. and J. Parkins. 2007. Industrial development and aboriginal cultural practice: Continuity and change in the NWT and beyond. Paper presented at the Annual Meeting of the Canadian Association of Geographers, May 29 - June 1, Saskatoon, Saskatchewan.

Baxter, W., W. A. Ross, and H. Spaling. 2001. Cumulative effects assessment: Improving the practice of cumulative effects assessment in Canada. *Impact Assessment and Project Appraisal* 19(4): 253-262.

Beckley, T. M. 1995. Community stability and the relationship between economic and social well-being in forest dependent communities. *Society and Natural Resources* 8: 261-266.

Berkes, F. and C. Folke, eds. 1998. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience* New York: Cambridge University Press.

Binnema, T. and M. Niemi. 2006. 'Let the line be drawn now': Wilderness, conservation, and the exclusion of aboriginal people from Banff National Park in Canada. *Environmental History* 11: 724-50.

Burdge, R. J. 2002. Why is social impact assessment the orphan of the assessment process? *Impact Assessment and Project Appraisal* 20(1): 3-9.

Burdge, R. J. and F. Vanclay. 1995. Social impact assessment. In *Environmental and Social Impact Assessment*, eds. F. Vanclay and D. A., 31-65. New York: Chichester.

Cassady, J. 2007. A tundra of sickness: The uneasy relationship between toxic waste, TEK, and cultural survival. *Arctic Anthropology* 44(1): 87-97.

Champagne, D. 2007. *Social Change and Cultural Continuity among Native Nations.* Toronto: AltaMira Press.

Champagne and Aishihik First Nations, Government of Yukon, and Alsek Renewable Resource Council. 2004. Strategic Forest Management Plan: Community Directions for a Sustainable Forest.

Claes, R. and D. Clifton. 1998. *Needs and Expectations for Redress of Victims of Abuse at Residential Schools.* Ottawa: Law Commission of Canada.

Clary, D. A. 1986. *Timber and the Forest Service.* Lawrence, Kansas: University of Kansas Press.

Creasey, R. and W. Ross. 2005. The Cheviot mine project: Cumulative effects assessment lessons for professional practice. In *Environmental Impact Assessment: Practice and Participation*, ed. K. S. Hanna, 145-159. Toronto: Oxford University Press.

Cruikshank, J. 1975. *Their Own Yukon: A Photographic History by Yukon Indian People.* Whitehorse: Yukon Press Limited.

———. 1991. *Dan Dha Ts'edenintth'e Reading Voices, Oral and Written Interpretations of the Yukon's Past.* Vancouver: Douglas and McIntyre.

———. 1998. *The Social Life of Stories: Narrative and Knowledge in the Yukon Territory,* Vancouver: UBC Press.

Dessauer, F. E. 1949. *Stability.* New York: MacMillan Co.

Dixon, 1978. *What Happened to Fairbanks? The Effects of the Trans-Alaska Oil Pipeline on the Community of Fairbanks, Alaska.* Boulder: Westview Press.

Duerden, F. 1981. *The Development and Structure of the Settlement System in the Yukon.* Whitehorse: Department of Library and Information Resources.

Duinker, P. N. and L. A. Greig. 2006. The impotence of cumulative effects assessment in Canada: Ailments and ideas for redeployment. *Environmental Management* 37(2): 153-161.

Flint, C. 2006. Community perspectives on spruce beetle impacts on the Kenai Peninsula, Alaska. *Forest Ecology and Management* 227: 207-218.

Flyvbjerg, B. 2001. *Making Social Science Matter: Why Social Inquiry Fails and How it can Succeed Again.* New York: Cambridge University Press.

Force, J. E., G. E. Machlis, L. Zhang, and A. Kearney. 1993. The relationship between timber production, local historical events, and community social change: A quantitative case study. *Forest Science* 39 (4): 722-742.

Foucault, M. 1980. *Power/Knowledge,* ed. C. Gordon. New York: Pantheon.

———. 2000. *Essential Works of Foucault 1954-1984, Volume 3: Power*, ed. P. Rabinow. New York: New Press.

Fournier, S. and E. Crey. 1997. *Stolen From Our Embrace: The Abduction of First Nations Children and Restoration of Aboriginal Communities*. Vancouver: Douglas and McIntyre Ltd.

Gilmore, J. S. 1976. Boom towns may hinder energy resource development. *Science* 191(13): 535-540.

Gold, 1974. Social impacts of coal related development in Southeastern Montana. Missoula Institute for Social Research: University of Montana.

Government of Yukon. 2006. Alaska Highway Pipeline Project: Introduction. Department of Energy, Mines, and Resources. Accessed March 17, 2008 at http://www.emr.gov.yk.ca/pipeline/ahpp.html.

Greider, T., R. S. Krannich, and E. H. Berry. 1991. Local identity, solidarity and trust in changing rural communities. *Sociological Focus* 24: 263-82.

Greiner, R. S. Larson, A. Herr, V. Bligh. 2005. *Wellbeing of Nywaigi Traditional Owners: The Contribution of Country to Wellbeing and the Role of Natural Resource Management.* Report for the Burdekin Dry Tropics Board, CSIRO Sustainable Ecosystems, Davies Laboratory, Townsville, Queensland, Australia.

Gunderson, L. and C. S. Holling, eds. 2002. *Panarchy: Understanding Transformations in Human and Natural Systems*. Washington, D.C.: Island Press.

Harrison, G. 2005. News release: Arctic Indigenous Peoples unveil statement on climate change. Arctic Athabaskan Council. http://www.arcticathabaskancouncil.com/press/20051206.php (accessed February 11, 2008).

Hegmann, G., C. Cocklin, R. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross, H. Spaling and D. Stalker. 1999. *Cumulative Effects Assessment Practitioners Guide.* Prepared by AXYS Environmental Consulting Ltd. and the CEA Working Group for the Canadian Environmental Assessment Agency, Hull, Quebec.

Hoefs, M. and I. M. Cowan. 1979. Ecological investigation of a population of Dall Sheep: 9-40. Quoted in G. Lotenberg, *Recognising Diversity: An Historical Context for Co-Managing Wildlife in the Kluane region, 1890-Present.* (Prepared for National Historic Sites, Parks Canada: Whitehorse, Yukon, 1998).

Huntington, H. P. 1998. Observations on the utility of the semi-directive interview for documenting traditional ecological knowledge. *Arctic* 51(3): 237-242.

Hurlbert, E., ed. 2007. *From First We Met to Internet: Stories from Haines Junction's First Sixty-Five Years as a Settlement 1942-2007.* Haines Junction, Yukon: Yukon College.

Kearns, R. A. 1993. Place and health: towards a reformed medical geography. *The Professional Geographer* 45:139-147.

Keen, M., V. A. Brown, and R. Dyball. 2005. Social learning: A new approach to environmental management. In *Social Learning in Environmental Management: Building a Sustainable Future,* eds. M. Keen, V. A. Brown, and R. Dyball, 21-39. London: James & James/Earthscan Publications.

Kluane National Park. 2003. Kluane National Park and Reserve of Canada: Natural wonders and cultural treasures. http://www.pc.gc.ca/pn-np/yt/kluane/natcul/natcul1_E.asp (accessed October 17, 2007).

Kohrs, E. G. 1974. Social consequences of boom growth in Wyoming. Presented at the regional meetings of the Rocky Mountain Association for the Advancement of Science, April, Laramie, WY.

Kolb, D. A. 1984. *Experiential Learning: Experience as the Source of Learning and Development.* Toronto: Prentice Hall.

Korber, D. 2001. Workshop on cumulative effects of development in the Treaty 8 Area: Exploring a research program. Workshop proceedings, May 15-17, Fort St. John, BC. Sponsored and organized by the Sustainable Forest Management Network.

Kõrpella, K. M. and M. Ylen. 2007. Perceived health is associated with visiting natural favourite places in the vicinity. *Health and Place* 13: 138-151.

Laub, D. 1995. Truth and testimony: The process and the struggle. In *Trauma: Explorations in Memory*, ed. C. Caruth. Baltimore: Johns Hopkins University Press.

Lawe, L. B., J. Wells, and Mikisew Cree First Nations Industry Relations Corporation. 2005. Cumulative effects assessment and EIA follow-up: A proposed community-based monitoring program in the Oil Sands Region, northeastern Alberta. *Impact Assessment and Project Appraisal* 23(3): 205-209.

Lee, K. N. 1993. *Compass and Gyroscope*. Washington, D.C.: Island Press.

———. 1999. Appraising adaptive management. *Conservation Ecology* 3(2): 3. [online] URL: http://www.consecol.org/vol3/iss2/art3/ (accessed January 20, 2008).

Lee, R. G. 1987. Community stability: Symbol or social Reality?" In *Community Stability in Forest Based Economies*, eds. D. C. Le Master and J. H. Beuter. Proceedings of a conference in Portland, Oregon. November 16-18, 1987. Timber Press: Portland.

Lincoln, Y. S. and E. G. Guba. 1985. *Naturalistic Inquiry*. London: Sage Publications.

Lotenberg, G. 1998. *Recognising Diversity: an Historical Context for Co-Managing Wildlife in the Kluane Region, 1890-Present.* Prepared for National Historic Sites, Parks Canada, Whitehorse, Yukon.

Machlis, G. E. and J. E. Force. 1988. Community stability and timber-dependent communities. *Rural Sociology* 53(2): 220-236.

Marchand, J. F. 1943. Tribal epidemics in the Yukon. *Journal of the American Medical Association* 123 (16): 1019-1020.

McClellan, C. L. 2001. *My Old People Say: An Ethnographic Survey of Southern Yukon Territory*. Hull, Quebec: Canadian Museum of Civilization.

McClellan, C., L. Birckel, R. Bringhurst, J. A. Fall, C. McCarthy and J. R. Sheppard. 1987. *A History of the Yukon Indians: Part of the Land, Part of the Water*. Vancouver: Douglas and McIntyre.

Merriam, S. 1988. *Qualitative Research and Case Study Applications in Education: a Qualitative Approach*. San Francisco: Jossey-Bass Publishers.

Muckle, G., P. Ayotte, E. Dewailly, S. W. Jacobson, and J. L. Jacobson. 2001. Prenatal exposure of the northern Quebec Inuit infants to environmental contaminants. *Environmental Health Perspectives* 109: 1291-9.

Nicholls, W. G. 1981. *Aishihik: The Politics of Hydro Planning in the Yukon.* Ottawa: Canadian Arctic Resources Committee.

Notzke, C. 1994. *Aboriginal Peoples and Natural Resources in Canada.* North York: Captus University Publications.

Nuttall, M. 2005. Hunting, herding, fishing, and gathering: Indigenous peoples and renewable resource use in the Arctic. In *Arctic Climate Impact Assessment*, ed. C. Symon, 649-690. New York: Cambridge University Press.

Panelli, R. and G. Tipa. 2007. Placing well-being: A Maori case study of cultural and environmental specificity. *EcoHealth* 4: 445-460.

Patton, M. Q. 2002. *Qualitative Research and Evaluation Methods*, 3rd Edition. Thousand Oaks: Sage Publications.

Pushchak, R. and A. M. Farrugia-Uhalde. 2005. Social impact assessment and high-level radioactive waste disposal: The Canadian concept and aboriginal responses. In *Environmental Impact Assessment: Practice and Participation*, ed. K. S. Hanna, 118-144. Toronto: Oxford.

Richmond, C., S. J. Elliott, R. Matthews, B. Elliott. 2005. The political ecology of health: perceptions of environment, economy, health and well-being among 'Namgis First Nation. *Health and Place* 11: 349-365.

Robbins, W. G. 1982. *Lumberjacks and legislators: Political economy of the U.S. lumber industry*, 1890-1941. College Station, Texas: Texas A & M University Press.

Robbins, W. G. 1987. Lumber production and community stability: A view from the Pacific Northwest. *Journal of Forest History* 31 (4): 187-196.

Ross, H. 1990. Community social impact assessment: A framework for indigenous peoples. *Environmental Impact Assessment Review* 10: 185-193.

Shapcott, C. 1989. Environmental Impact Assessment and resource management, a Haida case study: Implications for native people of the north. *The Canadian Journal of Native Studies* 9(1): 55-82.

Smith, M. D., R. S. Krannich, and L. M. Hunter. 2001. Growth, decline, stability and disruption: A longitudinal analysis of social well-being in four western rural communities. *Rural Sociology* 66 (3): 425-450.

Steen, H. K. 1976. *The U.S. Forest Service: A History*. Seattle: University of Washington Press.

Strauss, A. and J. Corbin. 1990. *Basics of Qualitative Research, Grounded Theory Procedures and Techniques*. Sage Publications: London.

Stringer, E. T. 1996. *Action Research: A Handbook for Practitioners*. Sage Books: California.

Tollefson, C. and K. Wipond. 1998. Cumulative environmental impacts and aboriginal rights. *Environmental Impact Assessment Review* 18: 371-390.

Tuhiwai Smith, L. 1999. *Decolonizing Methodologies: Research and Indigenous Peoples*. London: Zed Books Ltd.

Yukon Territorial Government. 1999. Yukon Economic Review. November 1999. Department of Economic Development. http://economics.gov.yk.ca/Files/Economic%20Review/1998%20Review.pdf (accessed January 13, 2008).

———. 2001. Yukon Economic Outlook. March 2001. Department of Economic Development. http://economics.gov.yk.ca/Files/Economic%20Outlook/Outlook2001.pdf (accessed January 13, 2008).

Wilson, L. 2004. Riding the resource roller coaster: understanding socioeconomic differences between mining communities. *Rural Sociology* 69 (2): 261-281.

Wismer, S. 2003. The nasty game: How environmental assessment is failing aboriginal communities in Canada's North. In *Natural Resources and Aboriginal People in Canada: Readings, Cases, and Commentary*, eds. R. B. Anderson and R. M. Bone, 412-422. Concord: Captus Press Inc.

Wolkso, C., C. Lardon, S. Hopkins, E. Ruppert. 2006. Conceptions of wellness among the Yup'ik of the Yukon—Kuskokwim Delta: The vitality of the social and natural connection. *Ethnicity and Health* 11(4): 345-363.

Chapter Three

Reimagining Social Thresholds: Signals in the Social Lifeworld and their Translation into Social-Ecological Management Practices

(Target Journal: Ecology and Society)

Introduction

The term resilience has become popular in everyday language and across a number of disciplines, such as public health, psychology, education, cultural geography, and ecology. In a general sense, people use the term to describe abilities to bounce back or recover from disturbance. In the context of social-ecological systems, resilience has been used to discuss a variety of adaptations to changes such as global climate change (e.g. Adger and Kelly 1999; Berkes and Jolly 2001) and resource development (e.g. Adger 2000; Varghese et al. 2006) that influence human-environment dynamics.

In the literature on this topic, a resilient social-ecological system is characterized as one with the capacity to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks (Walker et al. 2002). This approach to resilience implicitly recognizes the dynamics of change, which is highly relevant for a number of places around the world where the physical environment is undergoing change, and groups demonstrate varied abilities to makes sense of this change and manage their organized responses to it.

Resilience scholars are interested in how members of a system read signals in their environment (hence the attention to the role of traditional knowledge keepers in indigenous settings) and change management practices based on social learning (Gherardi

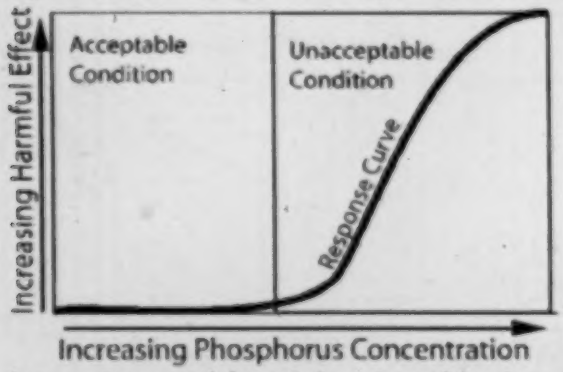
2001; Clark et al. 2001; Plumfner and FitzGibbon 2007), or how feedbacks from collective knowledge and observations become reflected in new management efforts. For instance, the emphasis in Berkes and Folke's 1998 seminal work on linking social and ecological resilience is recognition that conventional "command and control" resource management not only erodes ecological resilience but social resilience in that outsider control reduces the cultivation and use of local knowledge of resource management. Adaptive management on the other hand, is the strategy extolled by proponents of resilience, because of its emphasis on flexibility and learning from experience (Nadasdy 2007). In a nutshell, adaptive management is the process through which natural resource management policies are viewed as experiments that promote learning (Lee 1993; 1999; Berkes 2003).

An emerging component of management in resilient systems is the study of thresholds, which is not a new concept in and of itself. Thresholds have been examined in the discipline of ecology, for example, to show that certain ecological functions may cease to occur below a critical level of some ecological attribute. For instance, Andren (1994) showed that beyond a certain level of change to habitat configuration, a bird or mammal species may experience negative effects.

In other realms of study thresholds have gone beyond scientific standards to incorporate social values. Salmo Consulting Inc. (2006: 2), for example, defines thresholds as "technically and socially based standards that identify the point at which an indicator changes from an acceptable to an unacceptable condition." The following diagram illustrates the response of an indicator, otherwise known as a characteristic of society or the environment that represents a value, such as clean water for a healthy

environment, to a changing chemical concentration, and the threshold or acceptability of the change.

Figure 3.0. Theoretical dose-response curve with threshold effect.



Source: Recreated from Salmo Consulting Inc. et al. (2004: 36).

In the resilience literature thresholds are used to describe "breakpoints" between two regimes or alternate stable states in a system (Walker and Meyers 2004). In theory, when a threshold level is passed, a regime shift occurs, and as a result, the nature and extent of feedback in the system changes (*ibid.*). Building on the previous example, a shift from clear to turbid or eutrophic conditions in a lake illustrates a regime shift, and phosphorus and nitrogen concentrations are examples of corresponding thresholds.

Understanding threshold dynamics not only furthers our knowledge of how social-ecological systems function, but can have profound implications for management of those systems, as awareness is created regarding the implications of crossing thresholds into alternate regimes. Although informative, studying thresholds in terms of regime shifts is problematic for reasons that revolve around the societal component of resilience.

For one, how does one know when social systems are no longer functional? Regime shifts and thresholds in society can be difficult to discern compared to those in

ecosystems, because they are subject to such things as values, opinions, and culture, whereas a species can get by with x amount of suitable habitat for example. In addition, a species that "gets by," or a system being functional is not the same as a system thriving. This raises the question, does the focus on thresholds as a limit reached, and subsequent shift in the repeated exchanges within a management system, obscure attention to management systems that not only persist but that thrive? Secondly, by limiting the study of thresholds to regime shifts, the contextual dynamics of how management systems within a community or society transform themselves and their environments over time are left out, even though they may have implications for resilience of the focal management system in the long term. For example, although a forest co-management board may be functioning well, other land uses (e.g., oil and gas development) and social challenges (e.g., high rates of substance abuse) in the region may obviate adaptive changes within the co-management system.

If the aim of threshold science is to improve the resilience of linked social-ecological systems, it is argued here that a new approach to studying thresholds in the social dimension is required. The objective of this paper is to provide a preliminary discussion of how to improve our conceptualization of social thresholds using (1) a more sociological analysis of social resilience, and (2) results from my research on the cumulative social effects of change with the Champagne and Aishihik First Nations of the Yukon, Canada.

Further Defining Social Resilience vis-à-vis Social Theory

The study of resilience started out with an emphasis on ecosystems, and how to manage them (e.g. Holling 1973), but has evolved to include unique contributions on

social processes that contribute to resilience including "social learning and social memory, mental models and knowledge-system integration, visioning and scenario building, leadership, agents and actor groups, social networks, institutional and organizational inertia and change, adaptive capacity, transformability and systems of adaptive governance that allow for management of essential ecosystem services" (Folke 2006: 263).

To draw further attention to the societal dimension of resilience, some authors have ventured forth stand-alone definitions of social resilience, like Adger (2000: 347), who defines it as "the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change." Marshall et al. (2007: 360) take a more pluralistic approach to social resilience in their study and define it as "individual resilience and the flexibility with which resource users can cope and adapt to changes in resource policy."

Others such as Nadasdy (2007) question legitimacy of the resilience concept, because of its failure to address how one's position within the social-ecological system influences how they evaluate resilience or the current configuration of the system. Because of political and social marginalization within current capitalist systems, he asserts, many indigenous peoples have few reasons to maintain the resilience of these systems. He uses the example of First Nations' rejection of the co-management effort to manage Dall Sheep in the Yukon, Canada to illustrate this viewpoint. Nadasdy points out that while co-management on the inside, looking out, may appear stable, and reflective of group values and interests, co-management in the broader community context may hold

weak legitimacy, or be marginalized as a key process for First Nation efforts to manage resources in a culturally honorable way.

With the exception of contributions like these, much of the focus in the resilience literature remains on ecosystems and how they can be adaptively managed, without much attention given to how particular system configurations affect those in the immediate context, who validate the systems' existence but may not be directly involved in its adaptive decisions. To address this gap in the literature, the spotlight will be shined heretofore on the poorly addressed elements of social resilience. To do this, I would first like to situate resilience in the domain of sociological theory to gain a broader perspective on its strengths and limitations. Following that I propose a broader conceptualization of social resilience, and address thresholds from a sociological vantage point using case study information from the CATT.

Resilience and Functionalism

At first glance, most sociologists would likely wonder if social-ecological resilience theory is simply a repeat of functionalism, the theory that society is made up of a series of interdependent parts. In simplified form, Talcott Parson's theory of functionalism focuses on the following:

(1) the influence of systems at the expense of individual actors: "the very definition of an organic whole is one within which the relations determine the properties of its parts. The properties of the whole are not simply a resultant of the latter" (1937: 32);
(2) consensus, stability, and order in the system rather than conflict and power, as demonstrated in his model of integration among the personality (individual actor), culture (symbols and meanings), and social system (interaction among actors) levels of analysis;
(3) the idea that modern societies developed as the result of a determined progression.

Most of the work on resilience is different from functionalist theory because of the emphasis on reorganization and transformation; equilibrium is not considered the norm of systems. In addition, "progress" is not *a priori* determined by theory, it is more about trial and error, as demonstrated by the adaptive management paradigm.

Despite these differences, there are still some elements that remain consistent with functionalism including that conflict and relations of power at multiple levels are not explicitly recognized in social systems. Another consistency is that the role of system-level phenomena, such as flexible and adaptive management practices, is emphasized over power dynamics and influential decisions within managed systems. Consistent with criticisms leveled at functionalism, one could argue the resilience literature also emphasizes function of organizations over decisive *action* inside and outside the doors of organizations that influences the way management systems perform and are perceived.

In sociology, rational actor theorist Coleman, among others, argued that studying the action of individuals is required in order to explain function, or system-level phenomena (Holmwood 2005). More specifically, he argued it was important to observe specific cases of how trust is sustained or breached rather than assume that trust is a requisite of social order; that is, trust is susceptible to individuals breaking it and contains reinforced relationships to maintain stable systems (*ibid.)*. Empirical research on individuals' motives, calculations, values, and opinions were considered fundamental to establishment of social theory. If management systems were studied by rational actor theorists in this way, we would likely know more about how power dynamics and influential decisions within such systems, for example, influence their overall functioning.

In an applied sense then, one might study social resilience in the context of social-ecological systems by asking questions that garner insight into the subtleties of action that play an influential part in the macro function of a system. That is, architects of organizations would likely be able to design more resilient management institutions that are publicly legitimate if there were deeper awareness of (1) processes related to decision making within institutions that affect system dynamics, (2) the variety of signals that people on the ground pay attention to, and (3) how these signals translate into management practices that are socially desirable.

A New Vision for Social Thresholds

As discussed earlier, there are problems inherent in viewing social thresholds as break points at which a new or revised management effort is forged. Break points are generally unidimensional, thus obscuring the subjective, contextual factors within management systems that may be critical to resilience. In addition, if the focus is only on systems that fail, and reformulate to function after a certain break point has been reached, attention is drawn away from management systems that thrive, which take into consideration how resource management unfolds within the context of a larger social system.

Rather than study social thresholds as break points, it is suggested here that they be viewed as signals that reflect larger social processes underway, which can be used to support and inform organizational decisions. This view takes a variety of local people (managers and residents) as experts on the myriad feedbacks in their communities and environments, and recognizes that they learn important lessons about the system and where it should be headed as they live within its constructs over time (Fisher 2000).

One of the strengths in seeing social thresholds as signals that can help transform management practices into ones that are more desirable is that there is recognition, by default, that although humans might be able to adapt to a variety of system configurations, they do, in fact, hold preferences for some configurations over others. The significance in asking people to reflect on these signals and preferences is that there is a great deal of social value in doing so. Bent Flyvbjerg's (2001) elaborate discussion of the epistemological relationship between the social and natural sciences helps to illustrate this point.

Flyvbjerg builds on Aristotle, who argued that the natural and social sciences should be viewed as completely separate endeavors. Similarly, Flyvbjerg argues the natural and social sciences cannot be viewed under the same microscope, because of their divergent ontologies. That is, the natural sciences are strong on cumulative, explanatory and predictive theory, whereas the strength of social science theory lies in the reflexive analysis and discussion of experiences, values and interests, "which is the prerequisite for an enlightened political, economic, and cultural development in any society" (*ibid.*: 3).

Next, I discuss my research on cumulative social effects, which is helpful in terms of (1) techniques one might utilize to gather information on social thresholds, and (2) what social thresholds might look like on a local level.

Case Study Background

The premise of my research was to explore local perceptions of landscape and social change in the CAFN Traditional Territory, Yukon, Canada, with improvement of the study of cumulative social effects in mind. As such, the historical and contemporary aspects of change were focal so that linkages could be made between how local people

experience impacts, the learning they undergo, and the visions they have for the future of the system. Understanding community members as both recipients and agents of change in this way was an important part of the research design, and germane to understanding social thresholds in the given framework.

The local-historical approach that was adopted for studying cumulative social effects in this case led us to discover a variety of factors that affected how social impacts from change took shape in the region, including how local voices have been silenced and empowered over the decades, project management and temporality, condition of the land, availability of natural resources, and institutional learning.

Methodology

First, to capture knowledge on signals within the social-ecological system that people paid attention to, local people were interviewed about how a series of important changes affected their perceptions of the land around them and the dynamics of their personal lives and communities. The changes that were selected for discussion in the interviews included resource development activities (forestry, mining, an old gas pipeline, and a hydro-electric dam), a massive Spruce Bark Beetle outbreak, and land claims—all of which span several decades of time, and represent diverse engines of social-ecological change. In addition to these, interview participants had the freedom to discuss other important changes in the local history.

These inquiry strategies were important for understanding the local nature of how change accumulates over time, and thus how signals manifest within a cumulative perspective. A timeline showing significant local markers of change was used as a visual

tool during interviews to assist participants with event recall and making associations among events. A reconstruction of this timeline is shown in table 3.0.

Table 3.0. A calendar of cumulative social impacts

1890-1900	Klondike Gold Rush
1900-1910	Residential Schools (North Yukon) Federal Indian Act Legislation
1910-1920	World War I Fur Trapping Regulations Applied to First Nations Peoples in the Yukon
1920-1930	Residential and Public Schools (Southwest Yukon) Gold Discovery on Squaw Creek
1930-1940	
1940-1950	World War II Construction of the Alaska Highway Creation of the Kluane Wildlife Sanctuary Construction of the Haines Highway Aishihik Road and Airport Built
1950-1960	Construction of Haines to Fairbanks Pipeline
1960-1970	Fuel Spill on Dezadeash Lake
1970-1980	Pipeline Closure Creation of Kluane National Park Aishihik Dam
1980-1990	Mine at Windy Craggy Mountain Proposed
1990-2000	Spruce Bark Beetle Outbreak CAFN Land Claims and Self Government Creation of Tatshenshini-Alsek Park First Nations Sawmill
2000-2010	Shutdown of First Nations' Sawmill Radioactive Water Discovered at Champagne

Who I talked with about these changes was also a crucial part of the methodology. In this case, a variety of local people with long-term experiential knowledge of the social-ecological system were interviewed. Experiential knowledge is that derived from the process of daily life learning, which infers that knowledge is produced from being continuously derived and tested out in experiences of the learner (Kolb 1984).

A community liaison and I conducted interviews with natural resource managers, health and social workers, and First Nations and non-First Nations residents who had

first-hand experience with the focal changes, and by extension, many other changes in the region. This combination of participants resulted in a rich assemblage of knowledge on the kinds of signals people pay attention to in their communities. Criteria for recruiting participants consisted of the following:

1) all participants will be recruited based on recommendations by key CAFN people, including the hired liaison and the Alsek Renewable Resource Council[23];
2) for residents, long-term residency will be a requirement so that responses will reflect as much local texture and context as possible;
3) for health and social workers and natural resource managers, only those with key informant knowledge, living, working in, for or with the Champagne and Aishihik will be included.

Views on desirable management practices were elicited from participants through a variety of positively and negatively framed questions that were asked after historical experiences with social and environmental change in the system had been discussed (from which thresholds were derived). I believe this had the benefit of providing a fertile reflection ground from which participants could translate their views on social thresholds into desirable system configurations. The types of questions that were asked on desirable system configuration, which may be translated into management practices, are listed in table 3.1.

Table 3.1. Questioning on system desirability

1. In your opinion, what are the best things about living in this community?
2. What about the biggest challenges you face here? Worries for the future?
3. When you think about the future of the land, soils, water, fish, plants and animals here, what do you hope for?
4. If more natural resource development were to happen here, would there be certain limits you would want to see in place?
5. How about certain benefits you would hope to see?
6. What about negative outcomes you would like to avoid?

[23] The local resource management body created after the signing of the CAFN land claim.

Examples of Social Thresholds and Desirable Management Practices from the Champagne-Aishihik Study

The basic foundation for understanding desirable management practices (function) in this case was knowledge of social thresholds, or signals that individuals identified from the feedbacks in their communities and environments (action). Three examples of social thresholds from our data are shared here.

Firstly, the Champagne and Aishihik First Nations' strong desire for a voice in the management of contemporary and retrospective issues is grounded in historical events that individuals associate with loss of voice, which is inextricably linked with culture. Respectively, the gold rush of 1898, residential school, and creation of the Kluane Game Sanctuary and National Park brought an influx of outsiders to the region who introduced individualistic values, a national agenda of "civilizing" Indians so that they eschewed their own traditions and culture and embraced European ones, and the enactment of policies that restricted First Nations' entitlement to resources within homeland areas.

All of these changes had effects on the ways that Champagne and Aishihik First Nations people used the land, and the ways in which their culture evolved. In this way, having a strong voice in management is desirable, and may be considered a key indicator of a healthy culture and landscape. The social threshold in this case is power in decision making, where level of local access and influence over decisions is central to effective and desirable land management and cultural integrity.

Secondly, local people voiced a strong desire to overcome some of the substance abuse problems in their communities, which have occurred in conjunction with many resource development activities in the region and have roots, for First Nations, that extend back to the time of relocation of Indian people to highway settlement communities

and residential school. Substance abuse was recently exacerbated by the First Nations' sawmill development project, because, as one interview participant described, "when they started that sawmill up, they hired a lot of locals who had problems with drugs and alcohol. When the first payday came, they didn't show up for work, and that's because they're still suffering from alcoholism or drug addiction." In addition, when the sawmill shut down much earlier than expected, many of those who were trained for the work were left empty handed and deeply disappointed in the end. In fact, even though the mill shut down more than six years ago, people still express their embitterment towards it as a failed enterprise in terms of its social impact on the community.

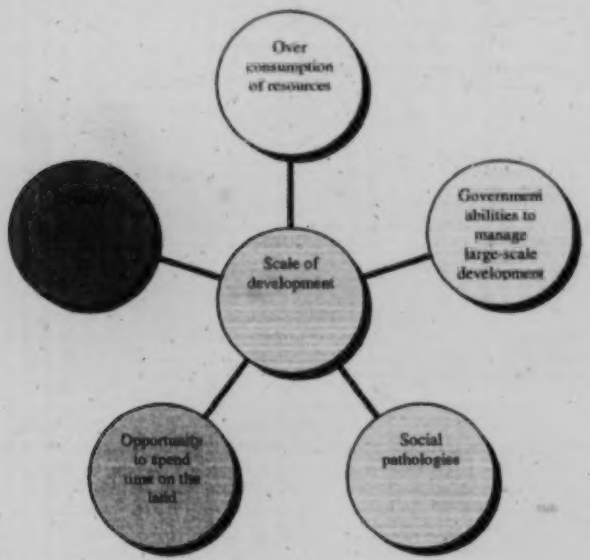
This situation evoked a strong desire for social healing to occur alongside any future development. So in this case, working towards reducing substance abuse is a desirable management practice that can help communities towards improvement of their overall well-being, because of its overall influence on a well-functioning, engaged community. Level of healing from historical events may be considered the social threshold, as it provides the basis for capacity to act, hope, and build on collective commitment to take care of each other.

The third example of management practices that are preferential is that many people identified with small-scale development in the CATT. Despite there being comparatively little development within the traditional territory's boundaries, its residents have made acute observations of large-scale mining, oil and gas, and forestry projects in the Yukon and elsewhere. Participants even mentioned specific places as undesirable outcomes.[24] Concern about the overconsumption of resources, financial and racial

[24] The Klondike gold fields near Dawson City, Yukon; the Anvil Mine in Faro, Yukon; Fort Nelson, British Columbia; the oil sands of northern Alberta; and Fairbanks, Alaska.

inequalities, social pathologies, government abilities to manage large-scale development, and contradiction with community values (all social thresholds indicative of community and environmental well-being) were some of the reasons people named when asked about why these particular outcomes were significant to them (summarized in figure 3.1).

Figure 3.1. Scale of development as a social threshold


Over consumption of resources
Government abilities to manage large-scale development
Scale of development
Opportunity to spend time on the land
Social pathologies

Many of these social thresholds, such as territorial and First Nation government management abilities, are also based on events in the local history. With respect to existing development in the CATT, one CAFN employee said the CAFN Government was not able to address concerns they had with a small-scale mine in the area, because of a lack of human resources to tend to the issue. In the face of potential projects like the Alaska Highway Gas Pipeline, a few participants questioned the abilities of both the CAFN Government and YTG to successfully manage such large-scale development.

All of these examples show how actions on the ground of the system send signals to people as to whether or not their communities and environments are in desirable states,

and how management practices can be informed by these. They also demonstrate that resilience is not always about institutions per say—it has a lot to do with a combination of different elements of the social landscape that individuals pay attention to on a daily basis, such as whether or not people feel they are able to influence decision-making processes, and if social healing from historical events is underway. If management systems are to gain greater legitimacy by the people they intend to serve, there will likely need to be greater consideration of social thresholds such as those described here.

Conclusion

This paper has outlined some of the challenges with the existing threshold framework in the resilience literature, such as that when social thresholds are interpreted as "breakpoints" at which a new or revised management effort is derived, the focus remains on reproducing systems that merely function rather than those that thrive in the eyes of those who must behold them. The source of some of these challenges, I argue, is in the societal dimension of resilience, in which the existence of adaptive management institutions (function) is commonly emphasized over larger scale system processes and factors related to action.

One of the ways suggested here for approaching social thresholds is to promote understanding of signals within the larger social system that individuals who validate management systems pay attention to and feel are important to the system's ability to adapt to future perturbations, and how these signals may inform organizational decisions. For example, knowing that co-management arrangements exist in the Champagne and Aishihik First Nations' Traditional Territory may not be as important to people as the

feeling that CAFN people have a strong and effective voice in management, which may be indicated by the social threshold of power dynamics in decision-making processes.

In terms of future research, it would be valuable to incorporate a broader segment of the informed and committed local population in a discussion on signals and desirable management practices. Youth, for example, have their own set of experiences and values that are important for consideration as the community imagines reproducing their local community and the organizations within it. This would have the added benefit of promoting social learning, an important component of resilience in that continuous dialogue and deliberation among community members and managers fosters open exploration of problems and their solutions.

References

Adger, N. 2000. Social and ecological resilience: are the related? *Progress in Human Geography* 24(3): 347-364.

Adger, N. and P. M. Kelly. 1999. Social vulnerability to climate change and the architecture of entitlements. *Mitigation and Adaptation Strategies for Global Change* 4: 253-266.

Andren, H. 1994. Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat: A review. *Oikos* 71(3): 355-366.

Berkes, F. 2003. Rethinking community-based conservation. *Conservation Biology* 18(3): 621-630.

Berkes, F. and C. Folke. 1998. Linking social and ecological systems for resilience and sustainability. In *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience,* eds. F. Berkes, C. Folke, and J. Colding, 1-25. New York: Cambridge University Press.

Berkes, F. and D. Jolly. 2001. Adapting to climate change: social-ecological resilience in a Canadian western arctic community. *Conservation Ecology* 5(2): 18 [online] URL: http://www.consecol.org/vol5/iss2/art18.

Clark, W. C., J. Jager, J. van Eifndhoven, and N. Dickson. 2001. *Learning to Manage Global Environmental Risks: A Comparative History of Social Responses to Climate Change, Ozone Depletion, and Acid Rain.* Cambridge, MA: MIT Press

Fischer, F. 2000. *Citizens, Experts and the Environment: The Politics of Local Knowledge.* Durham: Duke University Press.

Flyvbjerg, B. 2001. *Making Social Science Matter: Why Social Inquiry Fails and how it can Succeed Again.* New York: Cambridge University Press.

Folke, C. 2006. Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change* 16 (2006) 253-267.

Gherardi, S. 2001. From organizational learning to practice-based knowing. *Human-Relations* 54: 131-139.

Holling, C. S. 1973. Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics* 4: 1-23

Holmwood, J. 2005. Functionalism and its critics. In *Modern Social Theory: An Introduction*, ed. A. Harrington, 87-109. New York: Oxford University Press.

Kolb, D. A. 1984. *Experiential Learning: Experience as the Source of Learning and Development.* Toronto: Prentice Hall.

Lee, K. N. 1993. *Compass and Gyroscope.* Washington, D.C.: Island Press.

———. 1999. Appraising adaptive management. *Conservation Ecology* 3(2): 3. [online] URL: http://www.consecol.org/vol3/iss2/art3/ (accessed January 20, 2008).

Marshall, N. A., D. M. Fenton, P. A. Marshall, and S. G. Sutton. 2007. How resource dependency can influence social resilience within a primary resource industry. *Rural Sociology* 72(3):359-390.

Nadasdy, P. 2007. Adaptive co-management and the gospel of resilience. In *Adaptive Co-Management: Collaboration, Learning, and Multi-Level Governance*, eds. D. Armitage, F. Berkes, and N. Doubleday, 208-227. Vancouver: UBC Press.

Parsons, T. 1937. *The Structure of Social Action: A Study in Social Theory with Special Reference to a Group of Recent European Writers.* New York: McGraw-Hill.

Plummer, R. and J. FitzGibbon. 2007. Connecting adaptive co-management, social learning, and social capital through theory and practice. In *Adaptive Co-Management: Collaboration, Learning, and Multi-Level Governance*, eds. D. Armitage, F. Berkes, and N. Doubleday, 38-61. Vancouver: UBC Press.

Salmo Consulting Inc. 2006. Developing and Implementing Thresholds in the Northwest Territories- A Discussion Paper. Yellowknife: Prepared for: Environment Canada, Northern Division.

Salmo Consulting Inc., Axys Environmental Consulting Ltd., Forem Technologies, and Wildlife & Company Ltd. 2004. Deh Cho Cumulative Effects Study Phase 1: Management Indicators and Thresholds, Prepared for: Deh Chol Land Use Planning Committee. Calgary, Alberta.

Varghese, J., N. T. Krogman, T. M. Beckley, S. Nadeau 2006. Critical analysis of the relationship between local ownership and community resiliency. *Rural Sociology* 71(3): 505-527.

Walker, B., S. Carpenter, J. Anderies, N. Abel, G. Cumming, M. Janssen, L. Lebel, J. Norberg, G. D. Peterson, and R. Pritchard. 2002. Resilience management in social-ecological systems: a working hypothesis for a participatory approach. *Conservation Ecology* 6(1): 14. [online] URL: http://www.consecol.org/vol6/iss1/art14.

Walker, B. and J. A. Meyers. 2004. Thresholds in ecological and social-ecological systems: a developing database. *Ecology and Society* 9(2): 3. [online] URL: http://www.ecologyandsociety.org/vol9/iss2/art3

Chapter Four

Conclusions and Future Research

Summary of Findings

Moving social impact assessment towards that which is holistic and cumulative in nature is a necessary pursuit in Northern Canada. For too long, social impacts have been isolated from cumulative ones, which has served to simplify decisions regarding natural resource development. This phenomenon is known as methodological reductionism or "breaking of the world down into its constituent parts," which explains how singular representations of social or biophysical entities can be used to justify actions based on the dismissal of their interconnected qualities (Carolan 2005: 408). The following quote from Kultez's (1998: 139) book *The Tainted Desert* illustrates how perception and portrayal of the environment-society dialectic or lack thereof can influence the legitimacy of certain undertakings:

> if one sees Yucca Mountain as having *Puha* [Western Shoshone and Southern Paiute word for spirit power], it becomes problematic to designate it as a burial tomb for toxic waste. If one sees Yucca Mountain as a mass of inanimate material, such as "welded tuft," with characteristics that discourage water permeability—a mountain having a deep water table and a significant unsaturated zone—then one might more easily consider its use as a toxic waste dump.

As results from this research show, environment, society, and culture are entangled in a complex history that extends well back in time in the minds of local people, which requires a local-historical approach for adequate understanding. In the CATT this approach fostered comprehension of the historical origins of contemporary ideologies and problems, how these problems may be addressed, and what is locally desirable in terms of future landscape and social change—all things pertinent to the

evaluation of any development activity. Interestingly, taking such a historical perspective that recognizes cultural domination, for example, is what some health researchers are now doing to better explain issues related to aboriginal health. Mitchell (2005) notes, for instance, that the delivery of health services to aboriginal communities could be more effective if providers increase their awareness of the social and historical origins of distress.

Social thresholds, in the revised sense, also play a pivotal role in helping to explain the nuanced dynamics of culture, environment, and society—by promoting greater understanding of their large-scale manifestations that people pay attention to and see as critical to the overall ability of social-ecological systems to adapt and thrive in the face of future change. Moreover, in using the language of "thresholds," human arguments regarding society-culture-environment relationships may hold greater power and legitimacy when represented in cumulative effects assessments.

In years past, thresholds have been used to assess the significance of a development project's potential effects on the environment; they have rarely been applied to societies, because it is difficult, and arguably unacceptable, to decide that societies are no longer functional at a certain point. However, with the conception of social thresholds presented here, rooted in a social-ecological framework, thresholds can prove themselves useful to communities by helping them determine what issues they would like to bring to bear in cumulative effects assessment.

Future Areas of Research

While this study was approached from mainly a sociological vantage point, it would be useful for future research on cumulative social impacts and thresholds to

incorporate a wider stance that includes anthropological scholarship on tangible and intangible aspects of culture, as well as applied work on cultural impact assessment. This could serve to diversify the cues and methods that are used in cumulative impact assessment, and thereby the knowledge that is produced as a result.

I would also like to note that sociologists should play a greater role in the scholarship on thresholds, particularly in terms of how they can improve the practice of cumulative effects assessment. As mentioned earlier, there is a lack of empirical data on thresholds and their typologies (Walker and Meyers 2004), but especially those that pertain to the social elements of linked social-ecological systems. I have suggested one typology here, but there is a great deal of room to build on this point of departure using a variety of sociological theories that focus on how communities and resource management institutions have adapted to change.

Policy Implications

In the Yukon there is a unique opportunity for cumulative effects assessment to assist with creation of locally desirable land and socialscapes. This is because Yukon lands are relatively undeveloped when compared to jurisdictions such as British Columbia and Alberta; there is also legislation that mandates the consideration of cumulative effects and views from the public sphere on them. In turn, the legitimacy of agencies such as the YESAB, who assess cumulative effects, and the authorities who make the final decisions, may well rest on the quality of the assessments, and how well local concerns are addressed; however, this all depends on how cumulative effects assessment is applied and entrenched in the Yukon.

In Alberta, for example, where environmental stewardship is carried out under the auspices of the provincial government, cumulative effects management has been described as merely a discursive strategy used by the government to carry out resource development at its own desired pace (Davidson and MacKendrick 2004). The basis of this strategy was the presentation of cumulative effects as resolvable managerial issues rather than those associated with overexploitation of Alberta's natural resources, which would have likely brought cumulative effects assessment closer to its idealized form. If cumulative effects assessments are conducted in the Yukon with a local-historical approach that emphasizes the local identification of cumulative effects and social thresholds, there seems less of a chance for CEA to be subverted into a muddled form as it has in Alberta.

Another aspect of CEA that will be important for the Yukon to consider is that which is culturally honourable, so that distrust and nonparticipation in the process do not take precedence, as has happened with impact assessment processes in other parts of Canada (Shapcott 1989). As this study demonstrates, it is imperative that people who know the social-ecological system well feel compelled to participate in cumulative impact assessment, so that precious knowledge of how things happened before and how things happen now is reproduced. As one of the participants from this study said, with respect to the importance of youth spending time on the land, "what you don't know you can't miss."

It will also be key for Yukoners to carefully consider the variety of applications available for cumulative effects assessment. Currently, they are considered in YESAA processes, and regional land use planning efforts. However, some land use planning

efforts have derailed in the Yukon, such as the one for the Kluane Region, which did in fact outline cumulative effects issues in its summary of issues (Greater Kluane Land Use Plan 1989); and, the YESAB has recently been criticized for having too narrow a scoping process for adequate consideration of cumulative effects (Baltgailis 2008). Beyond these processes there are others through which cumulative effects may be addressed, such as in community planning and research efforts, and in Impact and Benefit Agreements (IBAs)—one type of agreement negotiated between communities and resource developers that addresses social and economic impacts (O'Faircheallaigh, 1999). Increasingly, these agreements are seen as an accessory to land claim mandated environmental assessment processes (Klein et al., 2004,), as well as a means toward the achievement of self-determination in aboriginal communities (O'Reilly, 1999-2000; O'Faircheallaigh, 2004).

What is promising about the potential for CEA in the Yukon is that Yukoners currently enjoy the luxury of being able to reflect on significant change that has occurred to date, in the absence of rapid or large-scale development. This is important, because reflection on practical experience induces learning, which then leads to a cycle of more learning, and can thus result in development of well-thought-out management strategies for bringing about change (Keen et al. 2005).

References

Baltgailis, K. 2008. Environmental Assessment: Back then, now and in the future. In *Walk Softly*, Newsletter of the Yukon Conservation Society, Spring 2008, 1-2.

Carolan, M. 2005. Society, biology and ecology: Bringing nature back into sociology's disciplinary narrative through critical realism. *Organization and Environment* 19 (1): 5-27.

Davidson, D. J. and N. A MacKendrick. 2004. All dressed up with nowhere to go: The discourse of ecological modernization in Alberta, Canada. *Canadian Review of Sociology and Anthropology* 41(1): 47-65.

Greater Kluane Land Use Plan. 1989. Summary of Issues. Yukon Government Report.

Keen, M., V. A. Brown, and R. Dyball. 2005. Social learning: A new approach to environmental management. In *Social Learning in Environmental Management: Building a Sustainable Future,* eds. M. Keen, V. A. Brown, and R. Dyball, 21-39. London: James & James/Earthscan Publications.

Klein, H., J. Donihee, and G. Stewart. 2004. Environmental Impact Assessment and Impact and Benefit Agreements: Creative Tension or Conflict? International Association for Impact Assessment conference paper. April 24-29 2004 Vancouver, Canada.

Kuletz. V. 1998. *The Tainted Desert: Environmental Ruin in the American West.* New York: Routledge.

Mitchell, T. L. 2005. Healing the generations: Post-traumatic stress and the health status of aboriginal populations in Canada. *Journal of Aboriginal Health* March: 14-23.

O'Faircheallaigh, C. 1999. Making social impact assessment count: A negotiation-based approach for indigenous peoples. *Society & Natural Resources* 12:63-80.

———. 2004. Evaluating Agreements between Indigenous Peoples and Resource Developers. In *Honour Among Nations? Treaties and Agreements with Indigenous Peoples,* eds. M. Langton, M. Tehan, L. Palmer and K. Shain, 303-328. Melbourne University Press: Carlton, Australia.

O'Reilly, K. 1999-2000. Impact and Benefit Agreements: Tools for Sustainable Development? *Northern Perspectives*. 25(4): 1-3.

Shapcott, C. 1989. Environmental Impact Assessment and resource management, a Haida case study: Implications for native people of the north. *The Canadian Journal of Native Studies* 9(1): 55-82.

Walker, B. and J. A. Meyers. 2004. Thresholds in ecological and social-ecological systems: a developing database. *Ecology and Society* 9(2): 3. [online] URL: http://www.ecologyandsociety.org/vol9/iss2/art3

Appendix A

Informed Consent Form

Informed Consent Form, Perceptions of Change in Southwest Yukon Land and Socialscapes: A Collaborative Research Project by Lisa Christensen & the Champagne and Aishihik First Nations

What is the purpose of this project?

The main purpose of this study is to enhance the ability of communities, industry, government, and other stakeholders in the CATT to engage in land-use planning that addresses social impacts associated with landscape change.

- By talking with residents of the Traditional Territory, natural resource managers, and health and social workers about landscape and social changes that have taken place, we aim to understand how the level of well-being for people in CATT communities and the environment have been influenced as a result. Information from these interviews will help us develop a tool that may be used to track social well-being over time, as well as inform a workshop component of the project, in which we will seek to understand peoples' key concerns around a variety of resource development activities. Lastly, the strengths of resource management agencies in the region will be evaluated based on the important role they play in managing landscape change.

What kinds of questions will you be asked?

- The questions will address landscape and social changes associated with natural resource development, the spruce bark beetle outbreak, land claims, and other significant changes that have occurred in the Traditional Territory. We will also ask you to tell us a bit about yourself, the community you live in, and what some of your hopes are for the future. No questions will be asked about songs, stories, your harvests, medicinal uses, or special places.
- If you do not feel comfortable with certain questions, you have no obligation to answer them. If after the interview is over you decide you do not want your information used, you have up to two weeks after the time your interview was complete to ask that it be withdrawn from the study and destroyed; you can also decide if you don't want to participate after the interview has begun.
- With your permission, we will record the interview on a recorder and Sheila will take notes on what you say.

Where will your name appear and who will know what you said?
What records are being kept or reports written, and how will they be used?

- Your name or position will not be mentioned in any report, rather your interview will be identified with a number, and this is all that will show up in any written report—unless you state otherwise. You may wish to be identified, in which case your name will be used; however, CAFN has the right to request that information be presented anonymously. We may find it important to report what you have said in the interview at length, since your direct words are important. We will contact you if we wish to use a quote that we think might be sensitive to ask for your permission to use it.
- The interview may be listened to by a professional transcriber, who must sign a confidentiality agreement stating s/he will not share what you say with anyone else or keep a copy of the transcript. The researchers on the project, me, Naomi and research

liaison Sheila, will have access to the transcribed interviews for a period of five years.. Given others may see me with you, or be able to identify your words, we cannot guarantee confidentiality. After all project reports are completed, ownership of transcribed interviews will rest with the CAFN; they will be stored in their archive facility where access to data will be granted through the CAFN research review committee, and held under lock and key. Data from the interviews (i.e. key themes and exemplary quotes) will be organized for written and oral presentations.

- Results from the interviews may be used in land use planning efforts currently underway in the Champagne and Aishihik Traditional Territory as well as in an Environment Canada supported project on cumulative effects management. Information from the interviews may be presented at meetings in the Yukon and NWT, if we are asked to share our findings, as well as at academic conferences. Research results will also be presented to the community. Results may also be published in academic journals. There is no guarantee that the findings in the research will be used in decision making.

Where can you find out more about this project and the people involved?

- Lisa Christensen, Researcher and MSc Candidate, 867-633-4585, lisa.christensen@ualberta.ca, Department of Rural Economy, 5-15 General Services Building, University of Alberta, Edmonton, Alberta, T6G 2H1,
- Naomi Krogman, Associate. Professor., 780-492-4178, naomi.krogman@ualberta.ca, Department of Rural Economy, 5-15 General Services Building, University of Alberta, Edmonton, Alberta, T6G 2H1
- Sheila Quock, Community Liaison & Oral History/Traditional Knowledge Researcher, 867-634-4015, sheilaq@cafn.ca, CAFN, #1 Allen Place, P.O. Box 5310 Haines Junction, YT, Y0B 1L0
- Georgie Jarvis, Research Office Coordinator, Office of the Associate Dean (Research) & Senior Administrator, AFHE Research Ethics Board, 780-492-8126, georgie.jarvis@afhe.ualberta.ca, Faculty of AFHE, University of Alberta

Do you agree to this? _____ **Date** _____
(Signature)

May we record this interview? ☐ Yes ☐ No

Do you wish to remain anonymous? ☐ Yes ☐ No

Would you like us to send you a summary document of the interviews?

☐ Yes ☐ No

Address: _____

This study was explained by: _____

Signature of Investigator _____ **Date:** _____

Appendix B

Interview Guide for First Nations and Non-First Nations Residents

Interview Guide for Health and Social Workers

Interview Guide for Natural Resource Managers

Interview Guide for First Nations and Non-First Nations Residents

Interviewee Name:_____
Date:_____ **Location:**_____
Start Time:_____ **End Time:**_____
Tape Details:_____

To start with, I'd like to ask you a few questions about yourself.

1. (Gender)

2. Are you a member or beneficiary of the Champagne and Aishihik First Nations?

3. a. How long have you lived in _____? *(If <u>not</u> always skip to C)*

   b. What was it like to grow up here? How have things changed since then? *Skip to #4*

   c. Where did you live before coming here?

4. What year were you born in?

5. a. What is it that you do for a living? ► *For elders ask B and C*

   b. What did you used to do?

   c. Do people in your community think of you as an elder? (i.e. do you regularly share your TK with others?)

6. How important is spending time out on the land for you? *Probe: how do you typically spend most of this time?*

Now I'd like to switch topics and ask you some questions about natural resource development activity within the traditional territory—specifically, I will be inquiring about <u>mining and exploration activity</u>, <u>forest harvesting</u>, the <u>Haines to Fairbanks pipeline</u>, and the <u>Aishihik Dam</u>. I do have a timeline here that shows when some of these changes took place to help you remember. Please know that there are no right or wrong answers here; I would simply like to hear answers that reflect your own thoughts, feelings, and experiences.

7. So let's start with mining and exploration activity. In your opinion, how have these activities affected the land, soils, water, fish, plants and animals here? *Probe: short term/long term changes (then and now); pace of change.*

8. How has ____ (development activity) affected you and your family's way of life or level of well-being? *Clarify "family." Probe: how did you deal with this change?*

9. In what ways have communities within the CATT region been affected? *Probe: in what ways did they cope with this change?*

10. Were there other important changes happening on the land, in the community or in your own life during_____.

11. Can you tell me if you've ever thought that some people benefited more from _____ (development activity) than others? *If example needed*: maybe there were only a select few who made financial gains for example, or some who were left disadvantaged as a result? *Then go back to #7 and repeat for <u>each resource development activity.</u>*

12. Have there been any major actions in this community taken by local people, groups or community representatives regarding mining and exploration, forestry, the pipeline, or the dam?

13. When you reflect on all these changes, can you tell me if you were ever surprised about any of the outcomes we've discussed?
Probe: were there ever any early warning signs that ____ was going to happen?; were any actions taken in response to these warning signs?

14. How would you describe the role of resource management agencies such as the CAFN, Parks, and YTG in these development activities?

Now I'd like to ask you a similar set of questions about land claims

15. Some describe the passage of comprehensive land claims legislation in February 1995 as a key event in Yukon History in terms of its far reaching effects for people and the environment. Before this legislation was passed, many people expressed concerns about how the everyday life of First Nations people might change. Now that almost 12 years have gone by since land claims, how do you think you and your family's way of life or level of well-being has changed?

16. How about for the broader community here in the Traditional Territory? *Probe: how people reacted to or dealt with changes; short term/long term changes; pace of change.*

17. Were there any other significant changes taking place on the land, in the community or in your own life during_____?

18. Can you tell me if you've ever thought that some people benefited more from land claims than others?

19. Have there been any major actions in this community taken by local people, groups, or community representatives regarding land claims?

20. Since the agreement was signed in '95, how do you think the land, water, soils, fish, plants and animals here in the traditional territory have changed?

21. Can you tell me if you were ever surprised about any of the outcomes we've discussed in the context of land claims? *Probe: were there early warning signs that ____was going to happen?; were any actions taken?*

The last major change event I'd like to ask you about is the spruce bark beetle outbreak

22. I understand that the beetle outbreak began here in southwest Yukon around 1990, and that many of the forests in this area have since undergone dramatic change. What is your understanding of changes to the lands, water, soils, fish, plants and animals here since the outbreak started? *Probe: cause of outbreak; pace of change; long term/short term changes.*

23. How did these changes affect you and your family's way of life or level of well-being? *Probe: how did people react to the beetle outbreak?; how do you and your family relate to the forests now?*

24. And for communities within the CATT region?

25. Were there any other significant changes happening on the land, in the community or in your own life during____?

26. Can you tell me if you've ever thought that some people in this community have really gained or lost something as a result of the outbreak?

27. Have there been any major actions in this community taken by local people, groups or community representatives regarding the outbreak?

28. Are you at all surprised about what has happened? (Pause) Did you ever think things would have turned out the way they did? *Probe: early warning signs, any actions taken?*

29. How would you describe the role of the resource management agencies in the beetle outbreak?

Okay so now that we've discussed these 3 change topics, I'd like to ask you...

30. If there are other changes to the land or well-being for people in the traditional territory that you think have been important? These can be positive *or* negative changes.

To finish up the interview, I'd like to ask you a few questions about the community you live in, and what some of your hopes are for the future.

31. In your opinion, what are the best things about living in this community?

32. What about the biggest challenges you face here? Worries for the future?

33. When you think about the future of the land, soils, water, fish, plants and animals here, what do you hope for?

34. If more natural resource development were to happen here, would there be certain limits you would want in place? *When, where, how much, etc.*

35. How about certain benefits you would hope to see?

36. What about negative outcomes you would like to avoid?

37. How does the future look for you? Future generations?

38. Is there anything you feel that has been left out on any of the topics covered in this interview? Do you have any last thoughts?

Interview Guide for Health and Social Workers

Interviewee Name:_____
Date:_____ **Location:**_____
Start Time:_____ **End Time:**_____
Tape Details:_____

To start with, I'd like to ask you a few questions about yourself and the agency you work for.

1. (Gender)

2. Are you a member or beneficiary of the Champagne and Aishihik First Nations?

3. a. How long have you lived in _____? *(If <u>not</u> always skip to C)*

   b. What was it like to grow up here? How have things changed since then? *Skip to #4*

   c. Where did you live before coming here?

4. What year were you born in?

5. How important is spending time out on the land for you? *Probe: how do you typically spend this time?*

6. What are your work responsibilities at ____ (organization name)?

7. What kinds of health and social issues do you spend the most time working on?

8. How would you describe the role of _____ in managing health and social issues?

9. How long have you worked in your current position?

Now I'd like to switch topics and ask you some questions about natural resource development activity within the traditional territory—specifically, I will be inquiring about <u>mining and exploration</u> <u>activity</u>, <u>forest harvesting</u>, the <u>Haines to Fairbanks pipeline</u>, and the <u>Aishihik Dam</u>. I do have a timeline here that shows when some of these changes took place to help you remember them. Please know that there are no right or wrong answers here; I would simply like to hear answers that reflect your own thoughts, feelings, and experiences.

10. So let's start with mining and exploration activity. In your opinion, how have these activities affected the land, soils, water, fish, plants and animals here? *Probe: short term/long term changes (then and now); pace of change.*

11. How has ____ (development activity) affected you and your family's way of life or level of well-being? *Clarify "family."*

12. In what ways have communities within the CATT region been affected?

13. Were there other important changes happening on the land, in the community or in your own life during _____?

14. Can you tell me if you've ever thought that some people benefited more from _____ (development activity) than others? *If example needed*: maybe there were only a select few who made financial gains for example, or some who were left disadvantaged as a result? *Then go back to #10 and repeat for <u>each resource development activity.</u>*

15. Have there been any major actions in this community taken by local people, groups, or community representatives regarding mining and exploration, forestry, the pipeline, or the dam?

16. When you reflect on all these changes, can you tell me if you were ever surprised about any of the outcomes we've discussed?
Probe: were there ever any early warning signs that ____ was going to happen?; were any actions taken in response to these warning signs?

17. In terms of the social issues you've described, has ____ (org. name) been involved in managing any of these? *If NO skip to #19*

18. How would you describe this role?

19. Do you think ____ (org name) has learned any important lessons from these issues? *Probe: any new policies/programs in place?*

Now I'd like to ask you a similar set of questions about land claims.

20. Some describe the passage of comprehensive land claims legislation in February 1995 as a key event in Yukon History in terms of its far reaching effects for people and the environment. Before this legislation was passed, many people expressed concerns about how the everyday life of First Nations people might change. Now that almost 12 years have gone by since land claims, how do you think you and your family's way of life or level of well-being has changed?

21. How about for the broader community here in the Traditional Territory? *Probe: how people reacted to or dealt with changes; short term/long term changes; pace of change.*

22. Were there any other significant changes taking place on the land, in the community or in your own life during_____?

23. Can you tell me if you've ever thought that some people benefited more from land claims than others?

24. Have there been any major actions in this community taken by local groups, citizens or community representatives regarding land claims?

25. Since the agreement was signed in '95, how do you think the land, water, soils, fish, plants and animals here in the traditional territory have changed?

26. Has ____ (org. name) been involved in dealing with some of the social issues you've talked about? *If NO skip to #28*

27. How would you describe ____'s role?

28. Do you think ____ (org. name) has learned any important lessons from land claims so far? *Probe: any new policies/programs in place?*

29. Can you tell me if you were ever surprised about any of the outcomes we've discussed in the context of land claims? *Probe: were there early warning signs that ____was going to happen?; were any actions taken?*

The last major change event I'd like to ask you about is the spruce bark beetle outbreak.

30. I understand that the beetle outbreak began here in southwest Yukon around 1990, and that many of the forests in this area have since undergone dramatic change. What is your understanding of changes to the lands, water, soils, fish, plants and animals here since the outbreak started? *Probe: cause of outbreak; pace of change; long term/short term changes.*

31. How did these changes affect you and your family's way of life or level of well-being? *Probe: how did people react to the beetle outbreak?; how do you and your family relate to the forests now?*

32. And for communities within the CATT region?

33. Were there other significant changes happening on the land, in the community or in your own life during _____?

34. Can you tell me if you've ever thought that some people in this community have really gained or lost something as a result of the outbreak?

35. Have there been any major actions in this community taken by local groups, citizens or community representatives regarding the outbreak?

36. Are you at all surprised about what has happened? (Pause) Did you ever think things would have turned out the way they did? *Probe: early warning signs, any actions taken?*

37. Has ____ (org. name) been involved in managing some of the social issues you've mentioned with regard to the outbreak? *If NO skip to 39*

38. How would you describe ____'s role?

39. Do you think ____ (org. name) has learned any important lessons from this? *Probe: any new policies/programs in place?*

40. How would you describe the role of the resource management agencies in the beetle outbreak?

Now that we've discussed these change topics, I'd like to ask you…

41. If there are other changes to the land, soils, water, fish, plants and animals or well-being for people in the traditional territory that you think have been important? These can be positive *or* negative changes.

To finish up the interview, I'd like to ask you a few questions about the community you live in, and what some of your hopes are for the future.

42. In your opinion, what are the best things about living in this community?

43. What about the biggest challenges you face here?

44. What do you worry about the most when you think about the future?

45. When you think about the future of the land, soils, water, fish, plants and animals here, what do you hope for?

46. If more natural resource development were to happen here, would there be certain limits you would want in place? *When, where, how much, etc.*

47. How about certain benefits you would hope to see?

48. What about negative outcomes you would like to avoid?

49. How does the future look for you?

50. What about for future generations?

51. Is there anything you feel that has been left out on any of the topics covered in this interview? Do you have any last thoughts?

Interview Guide for Natural Resource Managers

Interviewee Name:_____
Date:_____ **Location:**_____
Start Time:_____ **End Time:**_____
Tape Details:_____

To start with, I'd like to ask you a few questions about yourself and the agency you work for.

1. (Gender)

2. Are you a member or beneficiary of the Champagne and Aishihik First Nations?

3. a. How long have you lived in _____? *(If <u>not</u> always skip to C)*

   b. What was it like to grow up here? How have things changed since then? *Skip to #4*

   c. Where did you live before coming here?

4. What year were you born in?

5. How important is spending time out on the land for you? *Probe: how do you typically spend this time?*

6. What are your work responsibilities at ____ (organization name)?

7. How long have you worked in your current position?

8. What kinds of resource management issues do you spend the most time working on?

9. How would you describe the approach to resource management of ____?

Now I'd like to switch topics and ask you some questions about natural resource development activity within the traditional territory—specifically, I will be inquiring about <u>mining and exploration</u> <u>activity</u>, <u>forest harvesting</u>, the <u>Haines to Fairbanks pipeline</u>, and the <u>Aishihik Dam</u>. I do have a timeline here that shows when some of these changes took place to help you remember them. Please remember that there are no right or wrong answers here; I would simply like to hear answers that reflect your own thoughts, feelings, and experiences.

10. So let's start with mining and exploration activity. In your opinion, how have these activities affected the land, soils, water, fish, plants and animals here? *Probe: short term/long term changes (then and now); pace of change.*

11. How has ____ (development activity) affected you and your family's way of life or level of well-being? *Clarify "family." Probe: how did you deal with this change?*
12. In what ways have communities within the CATT region been affected? *Probe: in what ways did they cope with this change?*

13. Were there other important changes taking place during that time? These could be changes on the land, in the community or in your own life.

14. Can you tell me if you've ever thought that some people benefited more from ____ (development activity) than others? *If example needed*: maybe there were only a select few who made financial gains for example, or some who were left disadvantaged as a result? *Then go back to #10 and repeat for <u>each resource development activity.</u>*

15. Have there been any major actions in this community taken by local groups, citizens or community representatives regarding mining and exploration, forestry, the pipeline or the dam?

16. When you reflect on all these changes, can you tell me if you were ever surprised about any of the outcomes we've discussed?
Probe: were there ever any early warning signs that ____ was going to happen?; were any actions taken in response to these warning signs?

17. How would you describe the role of ____ (org. name) in these development activities?

18. Do you think ____ (org name) has learned any important lessons from managing these resource development issues? *Probe: any new policies/programs in place?*

Now I'd like to ask you a similar set of questions about land claims.

19. Some describe the passage of comprehensive land claims legislation in February 1995 as a key event in Yukon History in terms of its far reaching effects for people and the environment. Before this legislation was passed, many people expressed concerns about how the everyday life of First Nations people might change. Now that almost 12 years have gone by since land claims, how do you think you and your family's way of life or level of well-being has changed?

20. How about for the broader community here in the Traditional Territory? *Probe: how people reacted to or dealt with changes; short term/long term changes; pace of change*

21. Were there other significant changes taking place over this period? These could be changes on the land, in the community or in your own life.

22. Can you tell me if you've ever thought that some people benefited more from land claims than others?

23. Have there been any major actions in this community taken by local groups, citizens or community representatives regarding land claims?

24. Since the agreement was signed in '95, how do you think the land, water, soils, fish, plants and animals here in the traditional territory have changed?

25. Can you tell me if you were ever surprised about any of the outcomes we've discussed in the context of land claims? *Probe: were there early warning signs that ____was going to happen?; were any actions taken?*

26. Do you think ____ (org name) has learned any important lessons from land claims so far? *Probe: any new policies/programs in place?*

The last change event I'd like to ask you about is the spruce bark beetle outbreak

27. I understand that the beetle outbreak began here in southwest Yukon around 1990, and that many of the forests in this area have since undergone dramatic change. What is your understanding of changes to the lands, water, soils, fish, plants and animals here since the outbreak started? *Probe: cause of outbreak; pace of change; long term/short term changes*

28. How did these changes affect you and your family's way of life or level of well-being? *Probe: how did people react to the beetle outbreak?; how do you and your family relate to the forests now?*

29. And for communities within the CATT region?

30. Were there any other significant changes taking place over this period? These could be changes on the land, in the community or in your own life.

31. Can you tell me if you've ever thought that some people in this community have really gained or lost something as a result of the outbreak?

32. Have there been any major actions in this community taken by local groups, citizens or community representatives regarding the outbreak?

33. Are you at all surprised about what has happened? (Pause) Did you ever think things would have turned out the way they did? *Probe: early warning signs, any actions taken?*

34. Has_____(org. name) been involved in managing the beetle outbreak at all? *If NO skip to #38.*

35. How would you describe this role?

36. Do you think ____ (org name) has learned any important lessons from the outbreak? *Probe: any new policies/programs in place?*

Now that we've discussed these change topics, I'd like to ask you…

37. If there are other changes to the land, soils, water, fish, plants and animals or well-being for people in the traditional territory that you think have been important? These can be positive *or* negative changes.

To finish up the interview, I'd like to ask you a few questions about the community you live in, and what some of your hopes are for the future

38. In your opinion, what are the best things about living in this community?

39. What about the biggest challenges you face here? When you think about the future, are there things you worry about?

40. When you think about the future of the land, soils, water, fish, plants and animals here, what do you hope for?

41. If more natural resource development were to happen here, would there be certain limits you would want in place? *Probe: When, where, how much, etc.*

42. How about certain benefits you would hope to see?

43. What about negative outcomes you would like to avoid?

44. How does the future look for you? And for future generations?

45. Is there anything you feel that has been left out on any of the topics covered in this interview? Do you have any last thoughts?

Appendix C

Research Agreement

This Agreement dated for reference the 4th day of January 2007.

BETWEEN

Champagne and Aishihik First Nations Government

(CAFN)

and

Lisa Christensen

(Researcher)

and

Naomi Krogman and **Brenda Parlee**

(Supervisors)

Hereafter referred to as the "parties".

Whereas

(a) The Researcher would like to work with the CAFN to develop social indicators that can be used to monitor the social impacts and benefits of resource development as part of the Researcher's Master's thesis program;

(b) The CAFN and the Researcher desire to undertake a research project in a culturally appropriate manner that respects the cultural protocols of the community while insuring technically sound research methodologies are utilized.

THEREFORE THE PARTIES in consideration of the promises and conditions contained in this Agreement and for other good and sufficient consideration agree as follows:

1. Definitions

In this Agreement the following definitions apply:

"community liaison" means a CAFN staff person identified by the Review Committee.

"project" means the Perceptions of Change in Southwest Yukon Land and Social Scapes set out in the Project Summary;

"Review Committee" means the committee established under the Project Summary.

"Supervisors" means Naomi Krogman and Brenda Parlee;

2. Purpose

The purpose of this Agreement is to establish a working relationship between the Researcher, supervisors and the CAFN to insure the work of the project can be achieved in a manner that respects the interests of the parties.

3. Scope

The scope of the project is set out in the Project Summary which is attached as Appendix 1 and forms part of this agreement.

4. Supervisors

Naomi Krogman and Brenda Parlee agree to undertake the supervision of Lisa Christensen throughout the course of this agreement.

5. Project Principles

The parties agree to undertake the project in good faith and to undertake the work in an ethically and culturally respectful manner. To achieve this, the parties agree to utilize the following references as guidance:

(a) DRAFT: CAFN Draft Traditional Knowledge Policy Framework (Oct. 15, 2005)

(b) Schnarch, B., (2002). Ownership, Control, Access, Possession (OCAP) or Self-determination Applied to Research, A Critical Analysis of Contemporary First Nations Research and Some Options for First Nations Communities: First Nations Centre, National Aboriginal Health Organization.

(c) CURA, 2006. Otipimsuak Project/CURA Research Ethics Procedure Manual.

(d) First Nations Centre. 2002-3. First Nations Longitudinal Regional Health Survey—Code of Research Ethics. Accessed October 3, 2006 at http://www.naho.ca/firstnations/english/pdf/code_ethics_RHS.pdf

In the event that CAFN develops laws or policy related to the use, management, and access of traditional knowledge, CAFN will notify the Researcher and her Supervisors prior to the implementation of any such policy or laws.

6. Research Guiding Principles

The parties may agree to develop research guiding principles to assist in the management of the project.

7. Participation

In collaboration with the CAFN Review Committee, the Researcher will design the study, develop interview questions, select research participants, work alongside a community liaison, plan subsequent research steps, and obtain feedback and approval on any written documents summarizing the research (e.g., interview findings, summaries for Environment Canada, for academic journals or other periodicals).

8. Funding

Funding requirements of the Researcher shall be the sole responsibility of the Researcher.

9. Timeframes of Agreement

The primary term of this agreement shall be from _____ to _____ during which time the Researcher may undertake her primary source research. The secondary term of this agreement shall be from _____ to _____ during which time the Researcher shall undertake her analysis reporting, and publications as provided for in this agreement. Either or both of these terms may be extended with the written agreement of all of the parties.

10. Data Possession

(a) The parties acknowledge that this agreement does not grant ownership in the traditional knowledge that may be collected during the project.

(b) All of the transcribed interviews (from First Nations and non First Nations interviewees) will be delivered to CAFN by May 31, 2007 on a CD. In addition, transcriptions and notes from the March workshop, and copies of all information presented at any research workshop will be saved on CD and delivered to CAFN;

(c) The Researcher and Naomi Krogman, in her role as supervisor, will keep hard and electronic copies of the interview and workshop transcriptions, as well as notes from the workshop *until* all the Researcher's thesis, government reports, plain language and academic articles are complete. This can take a long time given the slow turn-around for research publications. Thus, the Researcher and supervisor would share possession of the interview data with CAFN for five years. After 5 years, i.e., (5 years beyond start date of the research agreement), the Researcher and the supervisor will delete all files holding original interview transcripts;

(d) Other project investigators such as Parlee, and NEI Researchers (Stelfox, Antoniuk, and Weber) will only have summaries of themes generated from a process of coding the interview transcripts so that "lessons learned" about cumulative social effects may be integrated with prior NEI research in the Yukon and shared at future NEI workshops.

(e) The Researcher and the Supervisor, to the best of their ability, ensure no other party than those stated in this research agreement have access to the primary source data.

(f) Should the Researcher or Supervisor become aware that data in their possession has been disclosed to an unauthorized recipient, they shall notify the community liaison as soon as practical.

11. Access

(a) Lisa and Naomi will store hard copies of all interviews in a locked cabinet at each of their places of work;

(b) Once delivered to CAFN, interview/workshop transcripts will be stored in their archive facility[25], where access to data will be limited; transcripts will be kept under lock and key.

12. Confidentiality/Sensitive Information

(a) Data and reporting will only be reproduced in a form that maintains confidentiality unless stated otherwise by the individual in the informed consent form. Even if the individual has given such consent, CAFN has the right to request that information be presented anonymously;

(b) The professional transcribers hired for interview and workshop transcription will sign a confidentiality agreement stipulating that s/he will not keep a copy of the interviews/workshop nor share with anyone its contents.

13. Prior Informed Consent

13.1Before any interview takes place:

(a) The community liaison will assist with a verbal description of the research purpose and what the consent form means with each CAFN person interviewed;

(b) The Researcher and liaison will provide business cards and written documentation where they (or the key CAFN contacts) can be reached;

(c) Consent forms will state clearly that the information collected will become the property of CAFN and summaries of the research will become publicly available in government reports, plain language reports, and other publications;

(d) In the case of participants who would like to remain anonymous the names of these individuals will not be associated with the data when it is released or published and will only be retained by the research team for the purposes of record keeping and contact information;

(e) Participants whose names will be associated with data will be notified of this in writing and verbally, and will be given the opportunity to opt out of the process, by a specific date on the consent from (usually 3 weeks after the interview) prior to data analysis and write-up of the findings. All participants that make a request will be provided copies of all published materials that bear their name.

(f) The Researcher shall inform each participate that they may stop an interview at any time and that the participate can instruct the Researcher on how the information that they are providing can be used.

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[25] At this time, CAFN is in the process of formalizing its archive protocol.

13.2 This agreement does not in and of itself, grant access to traditional knowledge or traditional knowledge holders.

14. Intellectual Property Rights

(a) All original data (interview transcriptions) are the intellectual property of the interviewee. CAFN is recognized as having intellectual property rights for the collective of First Nations data gathered by the Researcher through this project;

(b) The Researcher is recognized as having intellectual property rights including copyright to academic publishing, including theses, and will acknowledge the role of the community and the CAFN in the research.

15. Public Use of Data

(a) The Researcher will be using the results of the project in: a) reports to the communities involved in the research; b) a Master's Thesis; c) reports to the funding agency (Northern Ecosystem Initiative; Canadian Circumpolar Institute); and d) academic publications;

(b) The Researcher will provide CAFN with the opportunity to review and comment on any use of project results in public formats. Specifically, CAFN will have 30 days to review any material and provide feedback to the Researcher. Should the research require feedback from CAFN during traditional harvesting time of the community, (August and September), CAFN shall have 45 days to respond. The Researcher will make best efforts to address any issues raised by CAFN and shall disclose these efforts to the First Nation, before materials are made public.

(c) The Researcher shall defend, indemnify and hold harmless the CAFN from all liabilities, demands, expenses and losses arising out of the use by the Researcher or by any other party acting on behalf of or under the authorization of the Researcher, of data or any other information collected, created or otherwise utilized throughout the term of this agreement.

16. Other or Future Use of Research Data

(a) The Project is part of a larger suite of projects funded by the Northern Ecosystem Initiative (NEI). NEI will be bound by the same terms and conditions of this agreement in their use of project related data;

(b) Though it is established that NEI Researchers will adhere to the same terms and conditions as in this agreement, they will be expected to maintain a high degree of communication with CAFN *throughout* the research process to ensure interests of the CAFN are being met;

(c) If there is a new application of the data for a subsequent or related project, the Researcher will seek permission from CAFN.

17. Third Party Agreements

The Researcher shall be responsible for any obligations arising out of third party agreements associated with the project, including any funding, reporting and accounting obligations that may arise.

18. Contact and Notice

(a) For the purposed of this agreement, the primary points of contact will be:

For CAFN:

Sheila Quock
Oral History/Traditional Knowledge Researcher:
1 Allen Place
Box 5310
Haines Junction, YT
Y0B 1L0

Phone: (867) 634-4010
email: squock@cafn.ca

For the Researcher:

Lisa Christensen, MSc Candidate.
Environmental & Rural Sociology
Department of Rural Economy, University of Alberta
Edmonton AB, T6G 2H1
lisa.christensen@ualberta.ca

(b) Where notice is required to be given under this agreement, notice shall be in wrting, signed by the party sending it and personally served or delivered by ordinary, registered mail to the follow address:

For CAFN:

Attn: Director of Lands Resources and Heritage
1 Allen Place
Box 5310
Haines Junction, YT
Y0B 1L0

Or by fax at: (867) 634-2108

For the Researcher:

Lisa Christensen, MSc Candidate
Environmental & Rural Sociology
Department of Rural Economy,
5-15 General Services Building
University of Alberta
Edmonton AB, T6G 2H1

For the Supervisors:

Naomi Krogman, Associate Professor,
Department of Rural Economy,
5-15 General Services Building,
University of Alberta,
Edmonton, AB T6G 2H1

Brenda Parlee, Assistant Professor,
Department of Rural Economy,
5-15 General Services Building,
University of Alberta,
Edmonton, AB T6G 2H1

19. Disagreements

(a) The Researcher and CAFN will make best efforts to resolve any issue or disagreement pertaining to the Project of this Research Agreement. In the event of a dispute, the Research Committee and the Supervisors will meet and attempt to resolve the dispute.

(b) In cases where no resolution is possible, the parties may identify and appoint a mutually acceptable third party who will make a decision on how to resolve the disagreement. The parties will agree prior to the appointment of the third party, on whether they will be bound by the decision of the third party. Costs associated with the third party shall be shared equally by the parties.

20. Termination

This agreement may be terminated by a party upon 30 days written notice to the other party. In the event that notice is given to terminate this agreement, the supervisors and the Researcher shall provide CAFN with all information collected during the project.

21. General

(a) Time is of the essence of this agreement.

(b) The parties represent and warrant that they have the authority to enter into and be bound by terms of this agreement.

(c) This agreement shall be governed by the laws of the CAFN and the Yukon.

THE PARTIES HEREBY AGREE to the terms of this agreement on this _____day of _____, 200__.

Champagne and Aishihik First Nations

_____ _____

Barb Hume Date
Director

_____ _____

Lawrence Joe Date
Director

Researcher

_____ _____

Lisa Christensen Date

Supervisors:

_____ _____

Naomi Krogman Date

_____ _____

Brenda Parlee Date

APPENDIX 1 OF RESEARCH AGREEMENT

PROJECT SUMMARY

PERCEPTIONS OF CHANGE IN SOUTHWEST YUKON LAND AND SOCIALSCAPES

Lisa Christensen, University of Alberta
October 23, 2006

1. Background

The Strategic Forest Management Plan (SFMP) for the Champagne and Aishihik First Nations Traditional Territory has many important social and ecological goals related to the sustainability of northern forests. Among these, the SFMP proposes that the CAFN monitor the social impacts and benefits of resource development in the region. To date, the work on social indicators has been limited, as indicated by the Research and Monitoring Technical Working Group[26].

2. Objectives

Lisa Christensen, University of Alberta, would like to work with the Champagne and Aishihik First Nations to develop social indicators that might be useful to the Nations in monitoring the social impacts and benefits of resource development as required under the Strategic Forest Management Plan. Specifically she would like to:

i) **Develop Social Indicators that are Culturally Appropriate:**
The first is to develop a set of social indicators[27] for use in a long-term, culturally appropriate, cumulative effects monitoring program. Indicators will be derived from interviews with First Nations and non-First Nations community members, natural resource managers, and health and social workers who have extensive knowledge of landscape and social changes that have occurred in the CATT; literature review; and a workshop that will involve a shared process of indicator selection, between myself and community members.

ii) **Understand Community Perceptions of Resource Development:**
The second objective is to seek understanding of society's preferences regarding alternative development scenarios. This objective will build on information gathered from interviews and literature review, but will also entail a workshop.

iii) **Work with Other Researchers in the Region to Understand how the Social and Ecological Impacts and Benefits of Resource Development are Interrelated:**

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[26] The Research and Monitoring Technical Working Group was established to guide all research and monitoring activities in the Traditional Territory that support the adaptive management strategy for forest management in the region. This working group was estalished under a Terms of Reference through the joint CAFN/ Yukon Government Implementation Agreement (2004).

[27] Indicators are variables that are monitored over time to assess change.

The third objective is to integrate this project's social data on landscape change with economic and landscape data collected in Southeast and Northern Yukon to develop the Northern Ecosystem Initiative's[28] integrated cumulative effects assessment tool for the North, called ALCES North. ALCES North will be used to assess the outcomes of various development paths on social, ecological, and economic indicators. Once developed, ALCES North will remain with the CAFN as a part of the community's resource management toolkit. This objective will involve separate workshops.

3. Workplan

i) Project Scoping:

- The contact organization for the development of this project has been the CAFN Review Committee, which has been working with Lisa in the development of the funding proposal, reviewing draft research agreement, and reviewing and approving interview questions and written documents produced by research team.
- Review Committee consists of *Roger Brown,* Forester, Co-chair of Research and Monitoring Technical Working Group, CAFN, 100-304 Jarvis Street, Whitehorse, Yukon, Y1A 2H2; *Karin Svec*, Department of Health and Social, CAFN, #1 Allen Place, P.O. Box 5310, Haines Junction, Yukon, Y0B 1L0; and *Sheila Greer*, Special Projects Contractor, CAFN, 867-634-4010, email: sgreer@cafn.ca

ii) Development of the Research Agreement:

- The final research agreement will be reviewed by all parties to the agreement, CAFN's legal consultant (Brian MacDonald), and the members of the CAFN Review Committee.

iii) Interviews:

- Interviews will be conducted with approximately 10 First Nations and 10 non-First Nations community members, 5 natural resource managers, and 5 health and social workers who have extensive knowledge of landscape and social changes that have occurred in the CATT;
- If Lisa is familiar with the person she seeks to interview, she will approach them and interview them herself; otherwise the CAFN liaison will arrange them and be present with her during the interview. Lisa/the liaison will arrange with the participant where to have the interview, which will most likely be the respective offices of health, social and resource management workers, and the homes of CATT residents;
- Interviews will follow a qualitative approach, whereby participants will be asked to answer a number of predetermined, open-ended questions, while allowing flexibility to digress beyond the set questions;
- Interviews are expected to last about one hour, and with permission, will be audiotaped.

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[28] The Northern Ecosystem Initiative (NEI) is an Environment Canada program that seeks to improve understanding of how northern ecosystems respond to climate change, contaminants, and resource use activities so that healthy environments and communities may be sustained.

iv) **Literature Review:**

- Lisa will review important secondary information sources to help gain more comprehensive knowledge of important landscape and social changes that have occurred in the region;
- Sources will include Statistics Canada data on Haines Junction, CAFN held grey literature (upon permission), other government (e.g. Yukon Territorial Government, Parks Canada) grey literature, and newspaper articles;
- Where possible, the liaison will help Lisa locate this literature.

v) **Workshops:**

- The first workshop will involve 1) a shared process of indicator selection, for use in the cumulative effects monitoring program, and 2) a discussion of simulated landscape changes and the potential suites of social benefits and liabilities associated with these changes. A yet to be determined number of participants from the community will be asked to participate in this workshop;
- In the second workshop, this project's social data on landscape change will be integrated with economic and landscape data collected in Southeast and Northern Yukon to develop the Northern Ecosystem Initiative's integrated cumulative effects assessment tool for the North. Participants are yet to be determined;
- The liaison will assist in coordination and organization of these workshops.

vi) **Analysis and Reporting:**

- Data analysis will be carried out by Lisa;
- Results will be communicated via 1) plain language report(s) for community, 2) academic journal articles and thesis, and 3) conference and other workshop presentations according to preferences of community members and plans of larger NEI team.

4. Timeline

The anticipated length of this project is one year and a half, beginning in September 2006, and ending in December 2007. Lisa is proposing to work with three or more communities including Whitehorse, Champagne, Haines Junction. The proposed timing of activities is as follows:

- November-January: Conduct interviews with First Nations and non-First Nations community members, natural resource managers, and health and social workers; gather secondary information
- February-March: Analyze interviews/secondary information; organize and conduct workshop #1
- March-August: Analyze workshop data; begin production of reports/thesis
- September-December: Conduct workshop #2; complete report/thesis write-ups; dissemination of findings to community

5. Project Funding

Provided by the Northern Ecosystem Initiative (Environment Canada), the University of Alberta, and the Canadian Circumpolar Institute. Of note is that the project is in cooperation with the Alberta Research Council (ARC)[29].

6. Research Team—Roles and Responsibilities

Lisa Christensen, Master's Candidate, Rural Sociology Program, Department of Rural Economy, 5-15 General Services Building, University of Alberta, Edmonton, AB T6G 2H1, FAX 780-492-0268, lisa.christensen@ualberta.ca. Lisa will be conducting primary field research on social indicators and how preferences of society for resource management/development scenarios [objectives 2i) and 2ii)]. Lisa is a Yukon resident, and her northern work experience with CAFN, Environment Canada, and Yukon Territorial Government has inspired her sincere interest in northern land use planning, indigenous peoples, and sustainable community development. Lisa will be taking guidance from her supervisors at the University of Alberta who have over ten years of experience in social impact assessment and indicators research[30].

7. Possible Risks and Benefits to CAFN

i) Possible Risks

- Considering the nature of the project, (i.e. understanding the linkages between social and landscape changes), particular events may be focused on to the exclusion of others;
- There could be concerns over the impact of the project on relationships between CAFN and non-CAFN peoples living in the Traditional Territory, and government employees;
- CAFN and U of A researchers need to ensure no unauthorized access to interview and workshop data, and that the data is usable to CAFN after the project is complete.

ii) Possible Benefits

- Furthering of the Strategic Forest Management Plan in terms of assessing social indicators;
- Local training and hiring of CAFN citizen;
- The NEI aspect of the project will build CAFN capacity by developing a tool for integrating social, ecological and economic information, for use in landuse

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[29] Role of the ARC will be to integrate data on economic and social components for NEI's integrated landuse modeling project, and administer the NEI budget for the project.

[30] ***Naomi Krogman***, Principal Investigator for NEI aspect of research and supervisor for Lisa, Associate Professor, Department of Rural Economy, 5-15 General Services Building, University of Alberta, Edmonton, AB T6G 2H1, Telephone 780-492-4178, FAX 780-492-0268, naomi.krogman@ualberta.ca. ***Brenda Parlee***, Co-Principal Investigator for NEI aspect of research and supervisor for Lisa, Assistant Professor, Department of Rural Economy, 5-15 General Services Building, University of Alberta, Edmonton, AB T6G 2H1, Telephone 780-492-6825, FAX 780-492-0268, brenda.parlee@ualberta.ca. ***Marian Weber***, Research Manager (NEI Project) Alberta Research Council Inc., 250 Karl Clark Road, Edmonton, Alberta T6N 1E4, Telephone 780-450-5193, FAX 780-450-5083, weber@arc.ab.ca.

planning. This tool will remain with CAFN, and may be helpful to CAFN in fulfilling YESAA requirements;

- Improve CAFN's capacity to address the cumulative social effects of proposed resource development activities;
- Other products from this research may be used to inform impact benefit negotiations;
- The CAFN Government will hold a precedent setting research agreement, which may be used to guide their engagement in future research.

Appendix D

Confidentiality Agreement for Liaison

Confidentiality Agreement for Transcriber

Confidentiality Agreement for Liaison

As a liaison for the project, "Perceptions of Change in Southwest Yukon Land and Socialscapes," I agree that I will not attribute specific comments I have heard in the interviews to the specific names of others, although the information I learn in general from the interviews may come up in future conversations related to land use and social changes in CAFN."

Liaison _____ **Date** _____

Investigator _____ **Date** _____

Confidentiality Agreement for Transcriber

As a transcriber for the project, "Perceptions of Change in Southwest Yukon Land and Socialscapes" I agree that I will not repeat to anyone the content of the interviews I transcribe for this project, and I will not keep a copy of the transcribed interview.

Transcriber _____ **Date** _____

Investigator _____ **Date** _____